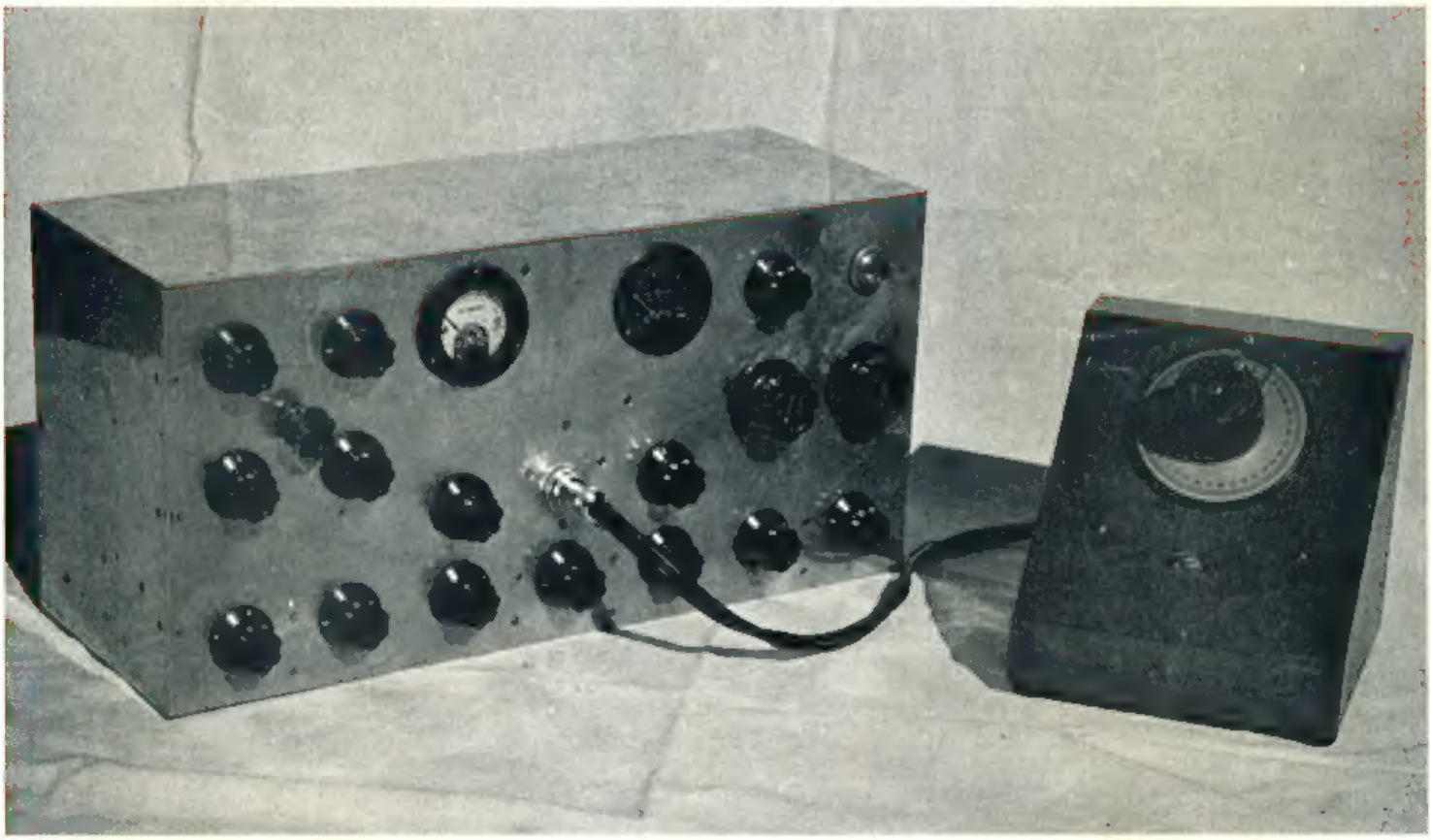
AMATEUR RADIO

Vol. 32 No. 10 OCTOBER 1962



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120 Kc.-390 Mc.

Freq. range (six bands): 120 Kc. to 130 Mc. on fundamentals; 120 to 390 Mc. on harmonics. Mod. freq. 400 and 1,000 c.p.s. Tubes: 12BH7, 6AR5. Rectifier: half wave selenium. Provision for crystal oscillator (xtal not supplied), 1 to 15 Mc. 100, 117 or 230v. a.c. input, 50/60 c.p.s. Size: 7½ x 10¾ x 4½ in. Weight: 6 lb.

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LSG10—£13/17/6 inc. tax

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Phone Plug (with 2 ft. Cord) and Jack. Brand new .... **2/6 set**

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(Ceramic)

Small Ceramic Variable Condensers, 5 to 60 pF., brand new **30/-**
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V.T.V.M. .. .. **£19/17/6** inc. tax
H.V. Probe .. .. **£3/5/0** inc tax
R.F. Probe .. .. **£2/10/0** inc. tax

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0-1 mA., 2¼" square, MR52 .... **£2**
0-1 mA., 3" square, MR65 .... **£2/7/6**

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EF50 Valve and Ceramic Socket **6/6**
EA50 Valve Sockets **1/6**
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Ceramic Shaft Couplings **3/6**
Pointer Knobs, small (black or wh.) **1/6**
Belling Lee Coaxial Plugs and Sockets, suit ¼" coax. **3/6 socket, 4/- plug**

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1A3	2/6	10 a £1	6SF7	7/6	3 a £1
1A5	5/-	5 a £1	6SH7	4/-	5 a £1
1A7GT	7/6	3 a £1	6SJ7	12/6	
1C7	3/-	7 a £1	6SK7GT	12/6	
1D5GT	5/-	5 a £1	6SL7GT	12/6	
1D8	7/6	3 a £1	6SN7	12/6	
1F5	7/6	3 a £1	6SQ7	12/6	
1H4	5/-	5 a £1	6SS7	7/6	3 a £1
1H5	5/-	5 a £1	6T7	7/6	3 a £1
1H6	5/-	5 a £1	6V4	11/4	
1K4	5/-	5 a £1	6V6GT	16/-	
1K5	5/-	5 a £1	6X5	15/-	
1K7	5/-	5 a £1	6Y6	5/-	5 a £1
1L4	5/-	5 a £1	7A8	2/-	11 a £1
1L5	10/-		7C5	5/-	5 a £1
1M5G	5/-	5 a £1	7C7	2/-	12 a £1
1N5	5/-	5 a £1	7E6	3/6	7 a £1
1P5	2/-	10 a £1	7W7	2/6	10 a £1
1Q5	5/-	5 a £1	12A6	4/-	6 a £1
1S4	7/6	3 a £1	12AT7	7/6	
1S5	10/-		12SA7GT	10/-	
1T4	5/-		12AH7	5/-	5 a £1
2A5	7/6		12C8	5/-	
2A6	7/6		12H6	3/6	
2D21	15/-		12J5	5/-	5 a £1
2X2	5/-	5 a £1	12K8	5/-	5 a £1
3A4	10/-		12SK7	5/-	5 a £1
3AP1	25/-		12SQ7	5/-	
3BP1	35/-		12SR7	5/-	5 a £1
3Q5	5/-	5 a £1	14A7	3/6	7 a £1
3Q4	10/-		117Z6	5/-	5 a £1
5U4GB	14/6		1625	5/-	5 a £1
5V4G	15/-		1626	5/-	5 a £1
5Y3GT	13/9		1629	5/-	5 a £1
5Z3	17/6		30	1/3	
6A3	7/6	3 a £1	35T	30/-	
6A6	7/6		45	5/-	
6AG7	12/6		717A	7/6	3 a £1
6AJ5	7/6	3 a £1	726A	10/-	
6AK5	20/-		80	13/-	
6AM5	(EL91)	10/-	805	45/-	
6AM6	(EF91)	10/-	807	7/6	3 a £1
6B4	10/-		808	10/-	
6B7	10/-		809	20/-	
6BE6	15/-		815	15/-	
6C4	5/-	5 a £1	830B	15/-	
6C5	5/-	5 a £1	832A	19/6	
6C6	5/-	5 a £1	866	20/-	
6C8	10/-		954	5/-	5 a £1
6CH6	2/-		955	5/-	5 a £1
6D6	5/-	5 a £1	956	5/-	5 a £1
6E5	5/-	5 a £1	958A	2/6	10 a £1
6F5	7/6		2051	5/-	
6F6	12/6		5763	22/-	
6F7	10/-		9003	7/6	3 a £1
6F8	5/-		AV11	2/11	
6G6	7/6	3 a £1	DL75	2/6	10 a £1
6H6	Glass	2/6	EA50	2/-	10 a £1
6J6	10/-		EC91/6AQ4		10/-
6J8	20/-		ECH33	20/-	
6K7	5/-	5 a £1	ECH35	20/-	
6K8G	20/-		EF36	5/-	5 a £1
6K8GT	12/6		EF39	5/-	5 a £1
6L7	5/-	5 a £1	EF50	3/6	
6R7	7/6	3 a £1	EF70	5/-	5 a £1
6SA7	7/6		EF72	5/-	5 a £1
6SC7	7/6		EF73	5/-	5 a £1
6SF5	7/6	3 a £1	EL41	10/-	

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BRAND NEW IN CARTON

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No. 311-8 Super P.V.C., all purpose, ¼" x 850 ft., **22/6 reel.**

No. 150-12 Polyester backing, extra play, ¼" x 1275 ft., **30/- reel.**

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American Bradley, 2" long, ¼" shaft, 1" diam. Available in following sizes: 20,000, 25,000, 30,000, 50,000, 100,000, 250,000 ohms, ½, 1 and 2 megohms.

Price 2/6 each

50 ohm 25w. wire wound (D129) 5/-

OA79 and OA81 DIODES

Well known make. Brand New.

To Clear—2/6 each

FUSE HOLDERS

Bakelite, round type, takes standard auto fuse **3/6**
Slide lock, single **3/6**
Slide lock, twin **2/6**

MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.

Specifications:
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.
A.c. volts: 0-10, 50, 100, 500, 1,000.
D.c. current: 0-50 μA.; 25, 250 mA.
Resistance: 0-60K ohms; 0-6 meg.
Capacity: 0.01-0.3 μF. (at a.c. 5v.); 0.0001 - 0.01 μF. (at a.c. 250v.).
Decibel: minus 20 db. plus 22 db.
Output range 0-10, 50, 100, 500, and 1,000.
Battery used: UM3 1.5v. 1 piece.
Dimensions: 3¼ x 4½ x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/17/6 inc. tax.

Spare Probes for 200H .... **5/- pair**
Spare Probes for PT34 .... **4/6 pair**

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KT61	(6V6)	15/-	VR136	2/-	12 a £1
OB2	30/-		VR137	2/6	
QQV06/40	97/6		VR150	10/-	
RL18	7/6	3 a £1	VT25	5/-	
UL41	7/6	3 a £1	VT127	4/11	5 a £1
VR53	5/-	5 a £1	VT501	7/6	3 a £1
VR101	5/-	5 a £1	Y65	5/-	
VR102	5/-	5 a £1			

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"AMATEUR RADIO"

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before the 8th of the month preceding publication. Technical articles should preferably be typed, double spaced, on one side of the paper, signed and numbered. All drawings should be large and done in Indian ink.

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WI Broadcasts:

VK2WI: Sundays, 1100 hours EST, simultaneously on 3573 Kc., 7146 Kc., 50.16 Mc. and 145.13 Mc.; Intrastate call-backs taken on 7050 Kc. VHF 1230 hours EST on 50.16 Mc. and 145.13 Mc.; call-backs taken on 2 metres.

VK3WI: Sundays, 1030 hours EST, simultaneously on 3573 and 7146 Kc., 51.016 and 146.25 Mc. Intrastate hook-ups taken on 7135 Kc.

VK4WI: Sundays, 0900 hours EST, simultaneously on 7146 Kc. and 14.342 Mc. Intrastate hook-ups taken on 7155 Kc.

VK5WI: Sundays, 0930 SAT. on 7146 Kc. Relays on 3.7, 14.2, 50.02, 144 and 288 Mc. Intrastate hook-ups taken on 7135 Kc.

VK6WI: Sundays at 0930 hours WAST, on 7146 Kc. Intrastate hook-ups taken on 7085 Kc.

VK7WI: Sundays at 1000 hours EST, on 7146 Kc. and 3672 Kc. Intrastate hook-ups taken on 7115 Kc.

★

OUR COVER

A 100 watt p.e.p. band-switched Phasing S.s.b. Transmitter with an external v.f.o. Designation of the front panel controls is given below the photograph of the interior of the transmitter on page 3.

FEDERAL COMMENT

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It is just over eight years since the Limited Licence was introduced into Australia and there can be little doubt on the effect on the v.h.f. bands since then. Scanning the bands with the receiver, looking at the logs submitted for V.h.f. Contests or examining the logs of keen v.h.f. operators will reveal that the majority of active stations are those of Limited Licensees. Further enquiries would show that a large number of A.O.C.P. holders operating on v.h.f. commenced their Amateur careers with Z calls.

Most Amateurs should be aware of the pressure on Amateur bands by commercial users. The emphasis has in the past been on the high frequency bands, but it can be expected that more and more will come on the v.h.f. bands in the future. Looking back to 1954, the year of the introduction of the L.A.O.C.P., although it was not foreseen at that time, it was opportune that the L.A.O.C.P. came into existence for without it, it would have been almost impossible to justify our use of some of the v.h.f. bands at Geneva. The L.A.O.C.P. licensee has materially changed this picture, and in this respect earned his place in Amateur affairs.

At the recent Federal Convention in Perth, some concern was expressed at the growing numbers of L.A.O.C.P. holders who appear to be disinterested in the Institute and its affairs. There also appeared to be an attitude arising of the L.A.O.C.P. considering himself one of an "elite" group. The Federal Council discussed these and other v.h.f. problems at length, and concluded that the fullest possibly integration of the L.A.O.C.P. licensees into all phases of Institute activities should be encouraged by education programmes providing for slow Morse transmissions and adoption of terminology that did not infer a "separateness" of Limited licensees. This matter will be one for the Divisions to solve, guided by the overall Institute policy.

In view of the fact that the Institute itself was instrumental in obtaining the L.A.O.C.P. privilege with the P.M.G's. Department, this is reason in itself for all Limited licensees to become a part of the organisation which nurtured them. Just as the Institute needs the Limited licensee, so does the Limited licensee need the Institute to represent him, in official matters and preserve his frequencies and other privileges. Unity is strength, and with strength we can confidently face the future.

—FEDERAL EXECUTIVE, W.I.A.

CONTENTS

MULLARD POWER TRANSISTORS UPRATED

TYPES OC28, OC29, OC35 AND OC36

The maximum DC and average collector current of these four Mullard Power Transistors is now 8A instead of 6A and the maximum allowable peak current has been raised from 6A to 10A. This means that these devices can now be used in high current applications, for example, in high current servo systems where it has hitherto been necessary to use larger and more expensive power transistors, often in the 12A range.

Consequently, it becomes possible to have more amps per shilling with these Mullard Power Transistors, since they are available at the same price as that before their uprating.

QUICK REFERENCE DATA

Power junction transistors of the p-n-p alloy type intended for use in medium and high voltage and high current switching applications. Matched pairs of each type are available under the prefix '2-OC' e.g. 2-OC28.

	OC28	OC29	OC35	OC36	
V_{CB} max. (I_E = 0A)	−80	−60	−80	−80	V
V_{CE} max. (I_E = 0.5A)	−60	−48	−48	−60	V
V_{CE} max. (I_E = 8.0A)	−60	−32	−32	−32	V
h_{FE} (I_C = 1.0A)	20–55	45–130	25–75	30–110	

Unless otherwise shown, data is applicable to all types

ABSOLUTE MAXIMUM RATINGS

The equipment designer must ensure that no transistor exceeds these ratings. In arriving at the actual operating conditions, variations in supply voltages, component tolerances and ambient temperatures must also be taken into account.

	OC28	OC29	OC35	OC36	
Collector voltage					
V_{CB} max. (I_E = 0A)	−80	−60	−80	−80	V
V_{CE} max. (I_B = 0.5A)	−60	−48	−48	−60	V
V_{CE} max. (I_B = 8.0A)	−60	−32	−32	−32	V
Collector current					
I_{CM} max.			10		A
†$I_{C(AV)}$ max.			8.0		A
Emitter current					
I_{EM} max.			12		A
†$I_{E(AV)}$ max.			9.0		A
Reverse emitter-base voltage					
V_{EB} max. (I_C = 0A)			−60		V
Base current					
I_{BM} max.			2.0		A
†$I_{B(AV)}$ max.			1.0		A
Total Dissipation at $T_{case} \leq 45°C$			30		W

$T_{case} > 45°C$ $\quad P_{tot}$ max. $= \frac{T_j \text{ max} - T_{case}}{\theta_{j\text{-case}}}$

†Averaged over any 20ms period.

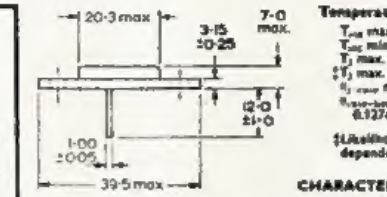
Temperature ratings

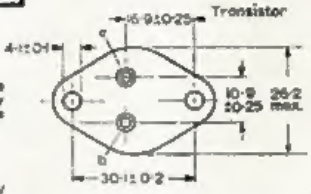
T_{stg} max.	75	°C
T_{stg} min.	−55	°C
T_j max. (Continuous operation)	90	°C
‡T_j max. (Intermittent operation total duration 200 hours)	100	°C
$\theta_{j\text{-case}}$ max.	1.5	°C/W
$\theta_{case\text{-hs}}$ max. (when mounted with metal washer 0.127mm thick and with mica washer)	0.5	°C/W

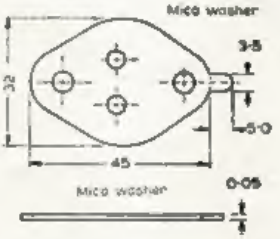
‡Likelihood of full performance of a circuit at this temperature is also dependent on the type of application.

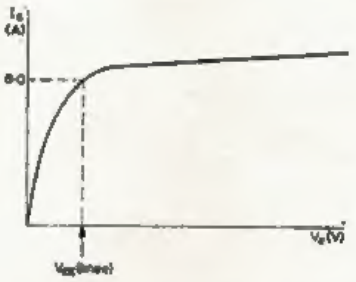
CHARACTERISTICS at T_{case} = 25°C

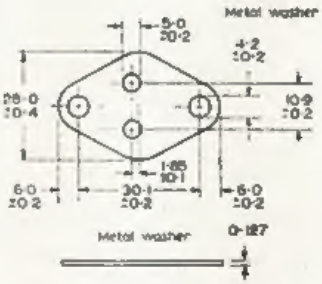
		Typical production spread Min.	Typ.	Max.	
Common base					
Collector leakage current (I_{CBO})					
(V_{CB} = −50mV, I_E = 0mA)		—	—	100	µA
(V_{CB} = −14V, I_E = 0mA, T_{case} = 100°C)		—	—	30	mA
(V_{CB} = −40V, I_E = 0mA, T_{case} = 100°C)	OC28, OC35	—	8.5	30	mA
(V_{CB} = −60V, I_E = 0mA T_{case} = 100°C)	OC29, OC36	—	12	30	mA
Emitter cut-off voltage (V_{CB} = −48V, I_E = 0mA, T_{case} = 100°C)	V_{EB}	—	—	−300	mV
Common emitter					
Collector knee voltage at I_C = 6A (see Fig. 1)	$V_{CE(sat)}$	—	−0.5	−1.0	V

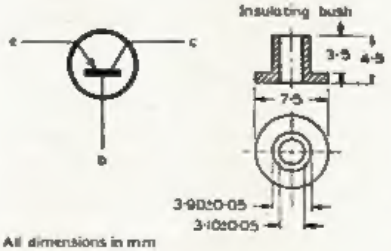










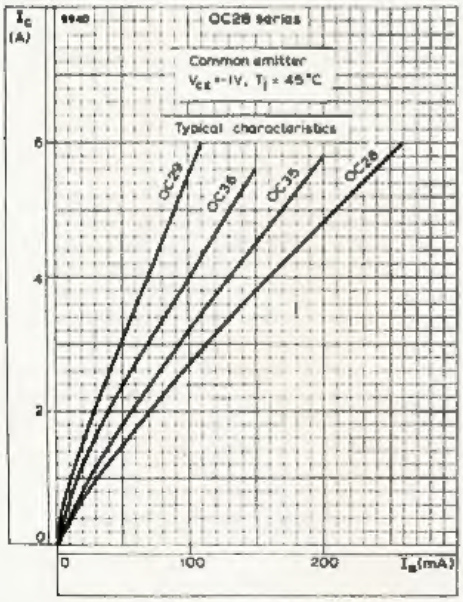


All dimensions in mm

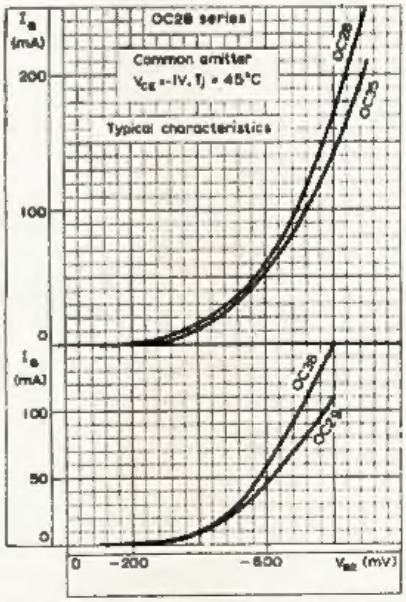
OUTLINES AND DIMENSIONS

TRANSISTOR TYPES

OC28, OC29, OC35 and OC36



TRANSFER AND INPUT CHARACTERISTICS. COMMON EMITTER



TRANSFER AND INPUT CHARACTERISTICS. COMMON EMITTER

MULLARD-AUSTRALIA PTY. LTD., 35-43 CLARENCE STREET, SYDNEY, 29 2006, AND 123-129 VICTORIA PARADE, COLLINGWOOD, N.5, VICTORIA, 41 6644. ASSOCIATED WITH MULLARD LIMITED, LONDON.

M103

A 100 WATT P.E.P. BAND-SWITCHED PHASING S.S.B. TRANSMITTER

A. S. MATHER, VK2JZ*

THERE is nothing new or novel about this transmitter, and it is very similar to others that have been described in "Amateur Radio" from time to time.

The layout is far from ideal, but it was dictated by the fact that a very nice 14 gauge aluminium panel 19¾" x 9½" with a large number of holes already drilled was available.

One look at the photograph (if it does not frighten off a would-be s.s. bander) shows that I was quite successful in filling them all up and in fact, one was added. Most of the controls and switches were fitted somewhere near their associated circuitry and the generous use of plastic covered twin shielded wire took care of those that could not.

After a chassis was added, a cabinet was constructed around the unit measuring 19¾" x 9½" x 7½" and divided into three compartments, but anyone who wished to build a similar transmitter would be well advised to make it on at least a wider chassis. However, it should serve as a good starting point for those going on s.s.b. and the output stage can readily be operated Class A to drive a grounded grid linear.

Once you get on s.s.b. and talk to the various Hams operating, you will quickly become familiar with it and will pick up much valuable knowledge from them. S.s.b. is like most things, easy when you know how. It is, therefore, a good idea to get out with a reasonable signal, then go about improving it and your knowledge of s.s.b. and if you were like me, you will have plenty of scope for both.

I would like to recommend to all would-be s.s. banders the A.R.R.L. "Single Sideband for the Radio Amateur" and the many excellent articles in "Amateur Radio."

Although what I have to say is old hat to most, a brief description of the various parts of the unit may be of interest.

THE AUDIO STAGES

The frequency response of the audio stages is restricted from 300 c.p.s. to 3 kc. for three reasons.

Firstly, this contains all the useful audio frequencies; secondly, this is the frequency range that the "Aswell" audio phase shift network is designed to operate on to give the 90° audio phase shift necessary. Thirdly, improves the power handling capability of the output stage and allows improved reception by narrow band pass filters in s.s.b. receivers. The narrow pass band is accomplished by small coupling condensers, un-bypassed cathode resistors and a 3 kc. cut-off filter.

* 14 William Street, Singleton, N.S.W.

• This article does not advise every stage required for the construction of a s.b. rig, it is intended for the Amateur well versed in the art of construction. All readers should gain by following the construction practices outlined by the writer who has produced a very practical and well built unit. The author is able to supply blue prints of the circuit for 2/9 each.

Please remember if writing to any author of a technical article to enclose a stamped addressed envelope.

A 2K linear pot "ratio control" determines that the audio voltage, 180° out of phase, is fed into the audio phase shift network in the correct proportion or ratio of 2 to 7 and is used to balance out the unwanted sideband as will be described later.

9 Mc. OSCILLATOR

A 12AU7, the first section a Pierce oscillator and the second an untuned amplifier or doubler, is used to permit the use of either a 4.5 or a 9 Mc. crystal.

About 2 volts of r.f. is fed to the balanced modulators 90° out of phase via the r.f. phase shift network.

BALANCED MODULATORS

This consists of four bridge-connected germanium diodes type OA85s, which, when adjusted by the two 1K linear "carrier balance" pots to give equal forward resistance, no 9 Mc. carrier energy will appear in the output coil. However, when audio is applied via the function switch, it unbalances the diodes and d.s.b.s.c. will appear in the output coil until the unwanted sideband is "phased" out by adjustment of the ratio control.

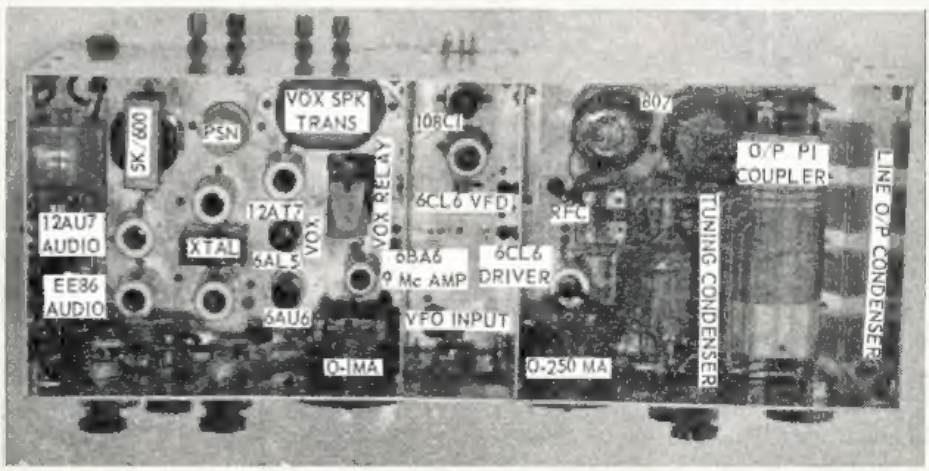
You will notice that in the "a.m." position, some h.t. is applied to the balanced modulators via the carrier insertion pot., as well as unbalanced audio, which will produce a.m. with the narrow pass band characteristic.

The a.m. output will be considerably less than for s.s.b. and there are easier and cheaper ways to get a.m. modulation. The a.m. position of the function switch is also used to make the two-tone test on the linear amplifier as will be described later. I would recommend the use of vacuum twin diodes such as the 6AL5 as I experienced some variation of diode impedance due to thermal effect on the germanium diodes during warm up periods.

9 Mc. AMPLIFIER

The output from the balanced modulators is link coupled to the grid circuit of the 6BA6 9 Mc. amplifier with the screen grid voltage regulated. It may be well to emphasise here that no other signal than that from the balanced modulators must be amplified and extreme care must be taken with layout and shielding.

The 6BA6 has a variable control in the cathode circuit which serves two



Layout showing placement of major parts. It is suggested that for proper operation and trouble-free performance, other constructors follow a very similar pattern. Note the use of "surplus" items. The front panel and external v.f.o. is shown on the front cover of this issue.

Designation of front panel controls. Five at top left corner (left to right): speech vox in, anti trip vox in, tone oscillator, audio gain and carrier insertion. Left meter: linear grid current; right meter: linear cathode current. Four at top right corner (l. to r.): pi output s/w., output, output tuning, line tuning. Below meters: Function switch, v.f.o. tuning jack, netting. Along the bottom (l. to r.): ratio control, carrier balance, carrier balance, v.f.o. output switch, 9 Mc. amp. gain, driver plate-linear grid switch, driver trimmer.

purposes (a) correct drive for the mixer, (b) a ready means to know the 9 Mc. s.s.b. output is being turned up in the following stages, because when the 9 Mc. amplifier gain is reduced, the output from the linear amplifier must also be reduced.

MIXER-DRIVER

A 6CL6 high level mixer is used to drive the parallel 807s in class AB1 linear. Providing care is taken not to drive the 6CL6 into grid current, no trouble with spurious signals should occur as this tube requires only small input to drive the 807s into grid current.

It is well to remember here that a tube operating as a mixer is only about one quarter as efficient as in normal amplifier operation. The plate coils of the 6CL6 and grid coils of the linear stage are inductively coupled, slug tuned, and wound on ¼" diam. plastic coil formers.

A 100 pF. variable condenser across the plate coil assures maximum drive at all frequencies and improves the rejection of unwanted frequencies. The 9 Mc. drive and the v.f.o. output are injected via 10 pF. condensers into the grid circuit of the mixer-driver.

V.F.O.

The v.f.o. is the familiar Clapp circuit using a 6CL6 with the screen grid regulated and tunes from 5 to 6.8 Mc.

All the v.f.o. was originally housed in the transmitter cabinet against good advice and resulted in annoying frequency drift. If there is any good advice I can give would-be builders of s.s.b. rigs, it is to remove the tuning components of the v.f.o. away from the heat generated by the transmitter and put them in a separate cabinet connected by two short lengths of co-ax.

Since doing this my frequency drift troubles have vanished and I am often complimented on the stability of the signal which is a must for s.s.b. reception.

On 14 Mc. and 3.5 Mc. an r.f.c. is switched into the plate circuit and the v.f.o. tunes 5 to 5.5 Mc. For the other frequencies, band pass coils are used to select the required harmonic output and the v.f.o. tuned to the correct portion of the 5 to 6.8 Mc. range to give the desired output as shown in the circuit diagram. R.f.c. and band coils are used to ensure as far as possible constant output from the v.f.o. throughout the tuning range.

Some constructors may consider calibrating the v.f.o. dial into the required frequency range for the five bands covered. I did not do this as I check my frequency meter and the 100 kc. frequency standard of my modified AR7.

AUDIO OSCILLATOR

This is a most important adjunct because not only is it imperative for correct adjustment of a s.s.b. rig such as this, but by using the preamplifier tube as an oscillator tube it lends itself to instant checking should some mis-adjustment appear.

An R/C network is coupled from the output of the pre-amp. to the input to convert it to a 1 kc. (approx.) tone oscillator by means of a d.p.d.t. switch.

LINEAR AMPLIFIER

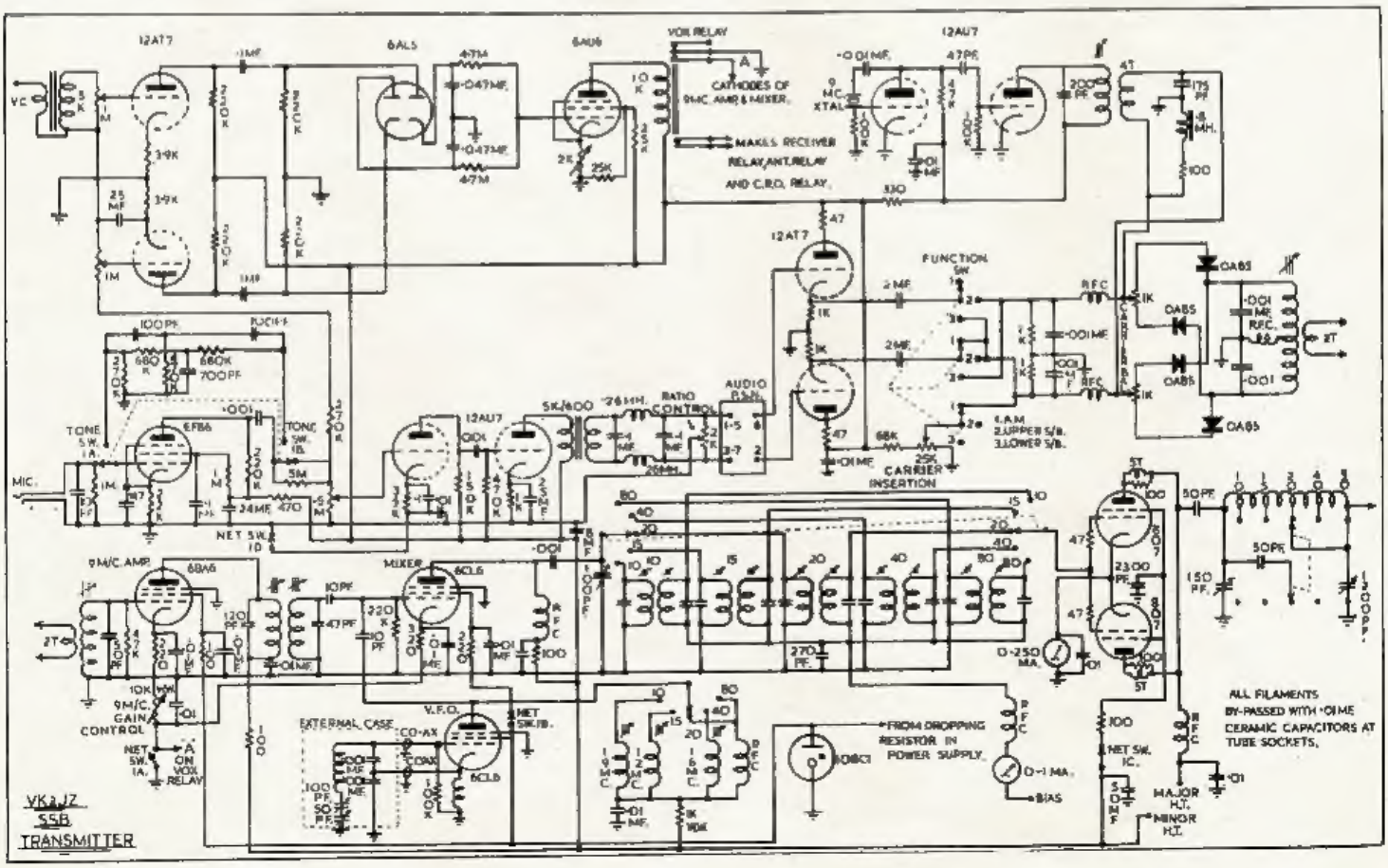
The parallel 807s in class AB1 are operated at 800v. plate voltage, 300v. screen voltage, —35v. bias, and idling current of 50 mA. On tone input the plate current is 150 mA. The screen is supplied from the minor h.t. supply which provided sufficient stabilisation. The cathode is metered so all plate current include approx. 14 mA. screen grid current. A 0-1 mA. in the grid circuit safeguards the possibility of driving the final into grid current. It will be noticed that an extra 50 pF. condenser is switched across the 150 pF. plate tuning capacitor on 3.5 Mc. to improve the Q at this frequency. The output is fed to a 52 ohm co-ax. line, the reflectometer, the a.c.u. and the antenna.

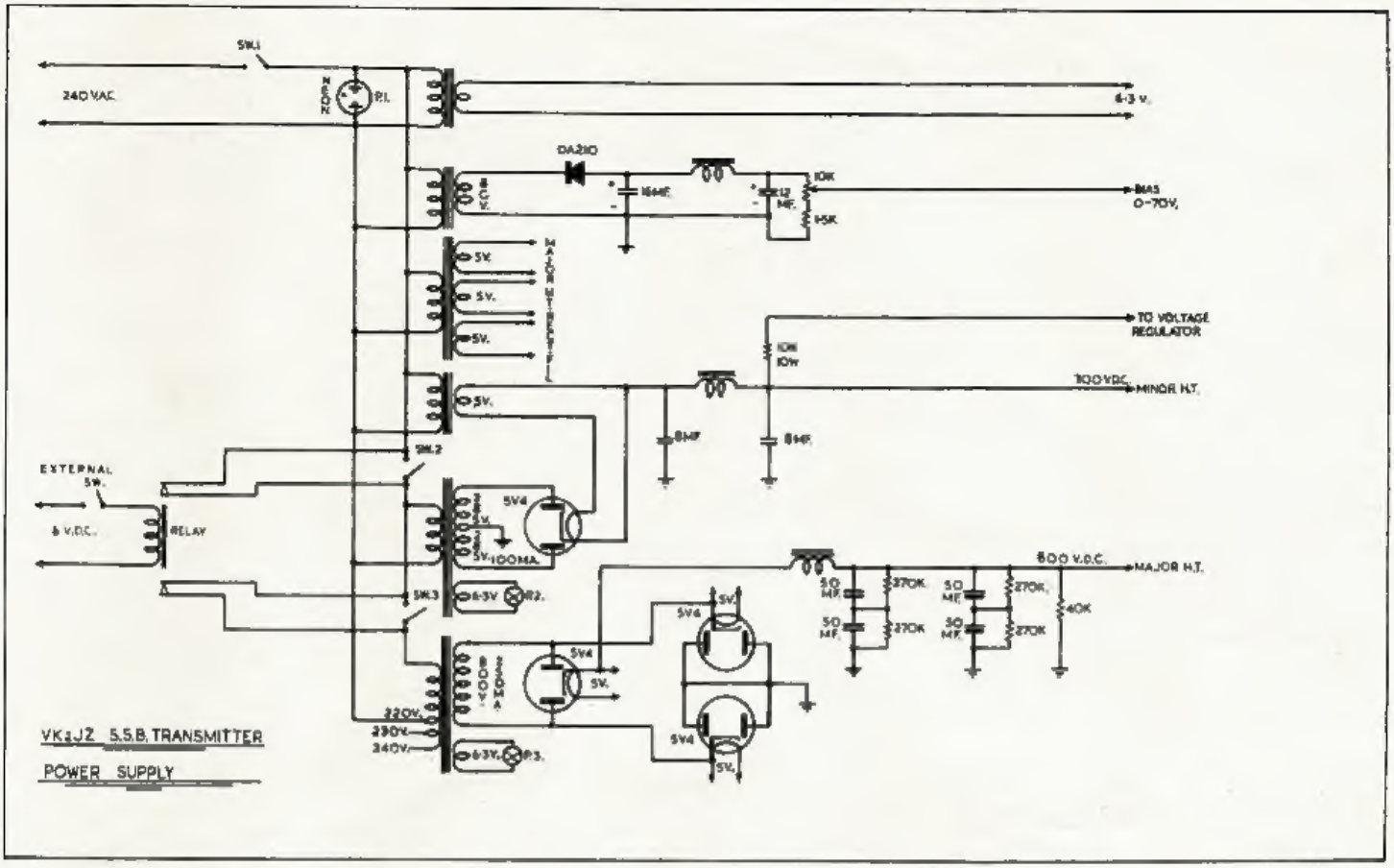
I cannot stress too strongly that the linear amplifier should be treated exactly as an audio amplifier with the difference that the tuned pi coupler or r.f. transformer replaces the output transformer, and it is driven by the s.s.b. signal from the driver. Therefore, the pi coupler should be adjusted carefully with a reflectometer and an antenna coupling unit to assure the correct impedance match between the plate circuit of the output tubes and the line.

The bias for the linear amplifier can be varied over the range of 0-75 volts d.c. by means of a control on the power supply chassis.

VOX

There is no doubt the system of using negative bias to operate the transmitter and receiver may give smoother





operation, but mine really grew up out of functions already used in conjunction with the 150 watt a.m. transmitter. The 10K relay in the plate circuit of the 6AU6 opens when the microphone is spoken into. This makes the cathodes of the 9 Mc. amplifier and mixer, and the transmitter is operative.

When the relay closes (no speech input), the 9 Mc. and mixer cathodes are opened up and receiver relay is made (makes cathodes of r.f. and i.f. stages), the c.r.o. relay is operated (opens cathode of c.r.o. tube) and the antenna relay makes (connects receiver input to antenna).

All the relays with the exception of the vox relay which makes them are operated with a separate 6v. d.c. supply and the reader will have got the idea by now that I like the sound of relays.

All the 6v. d.c. relay functions are paralleled by a key switch, so they can be used manually if necessary. The vox speech input and the anti-trip controls were brought on to the front panel only to fill two holes. They could be pre-set and mounted elsewhere.

NETTING

When the netting switch is operated, it:—

(a) Makes the cathodes of the 9 Mc. amplifier and mixer stages.
(b) Removes screen voltage from the mixer stage.
(c) Removes screen voltage from the linear stage.
(d) Opens cathode of second audio stage.

This provides sufficient signal without modulation for netting purposes.

TUNING

It is assumed that a simple scope, reflectometer and antenna coupling unit are available, and all stages are peaked so a signal of the correct frequency will appear on the output of the linear. The vertical plates of the scope are connected across the 52 ohm line between the reflectometer and the a.c.u. or, as in my case, a 50 watt 50 ohm dummy load.

You will notice that when the d.p.d.t. switch on the pre-amp. is operated, tone is applied to the vox speech input circuit and the transmitter becomes operative. The audio volume control is turned right off, so no audio is applied via the p.s.n. to the balanced modulators. The carrier is then balanced out by adjusting the two carrier balanced pots. Then a little audio is applied and adjust the "ratio control" till the unwanted sideband is phased out. The function switch is then operated between upper and lower sideband positions for equal attenuation of both sidebands.

The scope is observed for minimum ripple pattern and with care between 30 to 35 db. rejection of the unwanted sideband is possible. The audio gain is then advanced and the pi coupler is adjusted for optimum plate current, loading and maximum line current consistent with minimum s.w.r.

The audio oscillator is then switched off and the audio gain is then adjusted so that normal speech peaks or spikes do not exceed the tone amplitude as observed on the scope.

Never try to get the same peak meter readings either in the plate circuit or line output circuit as the meter movements will not be fast enough to follow the instantaneous peaks. The scope will, and no amount of needle bashing will give you more output than the linear is capable and flat topping and distortion will result.

If the function switch is turned to a.m. and the "carrier insertion" pot. turned right off and the audio gain advanced to get the correct drive, d.s.b.s.c. will result and the two tone test envelope can be observed (two equal r.f. signals separated by approx. 1 kc.). The output stage can then be checked for correct operating characteristics.

POWER SUPPLY

The power supply, built on a chassis 17½" x 9" x 5½" is so designed that SW1 lights P1, supplies 6.3v. a.c. to all filaments in the transmitter, 75v. d.c. bias (controlled by a 10K pot.), and lights all rectifier filaments.

SW2, which cannot operate until SW1 is made, lights P2 and supplies h.t. volts to the minor h.t. rectifier and 300v. is applied to the transmitter. Note that the 10,000 ohm 20 watt dropping resistor for the 108C1 VR tube is mounted in the power supply to keep this heat source away from the transmitter.

SW3 lights P3 only after SW2 is made and applies h.t. volts to the bridge rectifier, from the 220v. tapping on the transformer primary. Choke input and 50 μF. filter capacity are used for best regulation.

The 5V4s, although theoretically not as good as the 5U4 or 5R4GY, out per-

forms them as regards voltage output and regulation. The relay paralleling SW2 and SW3 is only used if the power supply was to be switched on remotely. Normally the power supply runs all the time with SW1, SW2 and SW3 made manually, the idling current of the 807s providing sufficient drain. All power connections, earth, 6.3v. a.c., minor h.t., minor h.t. to VR tube, major h.t. and bias are connected to transmitter via a 7-pair cable and female socket. The male 7-pin socket can be seen on the back of the transmitter. The vox operating functions are connected to four terminals also on the back panel.

CONCLUSION

I trust this article has been of some help to those about to take the plunge and I would like to thank those Amateurs who have, from time to time, helped with my s.s.b. problems.

If you have half the enjoyment that I have had since going on s.s.b. you will be more than compensated for the work and effort you put into it. ●

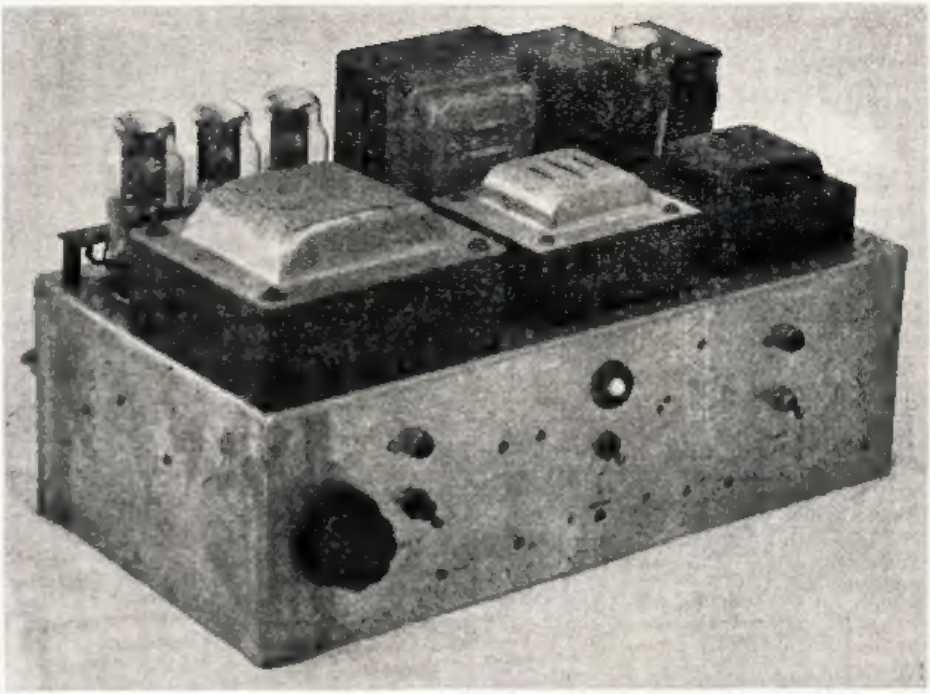
★

ERRATUM

In last month's "A.R." we noted that "Info" was a VK5 Divisional Bulletin. "Info" is the Elizabeth Amateur Radio Club Bulletin, and we regret the incorrect statement.

★

Looking for an article in a back issue of "A.R."? Consult the yearly index in the December issue and the master index in the 1955 and 1960 December editions. Back copies may be available upon request to P.O. Box 36, East Melbourne, C.2, Victoria.



Power Supply for the 100 Watt Phasing S.s.b. Transmitter. The three components along the front (left to right) are the major h.t. transformer, major h.t. choke, minor h.t. transformer. At the rear (left to right) are the three bridge rectifiers (5V4), major h.t. filament transformer, minor h.t. choke, minor h.t. rectifier (5V4), and minor h.t. choke. Note: the two minor h.t. chokes are paralleled. Large knob on front panel is the bias control. Pilot lights (l. to r.) are P3, P1, and P2. Switch: SW3, SW1 and SW2.

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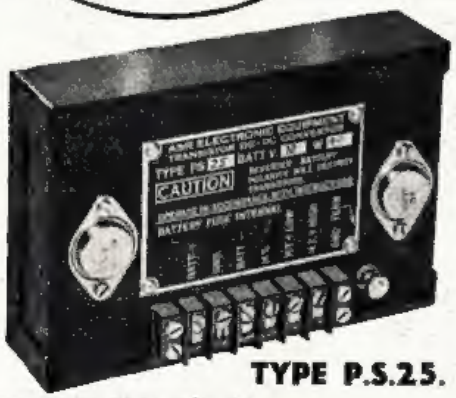

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A COLPITTS TRANSISTOR OSCILLATOR

M. R. HASKARD, VK5ZBH*

THE BASIC CIRCUIT

It is commonly known that an emitter follower, when capacity loaded at the output, can have a negative real part to its input impedance. If a crystal or parallel tuned circuit is connected across this negative resistance, as shown in Fig. 1, oscillations will occur. On several occasions now, a crystal controlled oscillator using this principle has appeared in literature, but in every case a tuned circuit has been included in the emitter circuit. Apart from the cases where a transformer is required for impedance matching, there is no need for the inductance to be included.

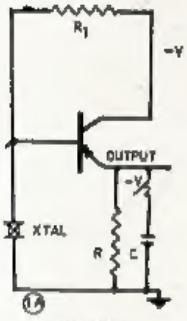


Fig. 1A.

The basic crystal oscillator which is fed by applying voltage to the collector. The output being taken from the emitter.

Fig. 1B.

The basic self excited Colpitts oscillator which is voltage fed to the collector with the output being taken from the emitter.

The simple emitter follower oscillator can also be used as a frequency multiplier, eliminating the need of tricky overtone circuits. The required harmonic is "extracted" by inserting a tuned circuit in the collector, as in Fig. 2. This circuit, while offering a high impedance to the required harmonic, does not affect the fundamental in any way, for at this frequency its impedance is negligible.

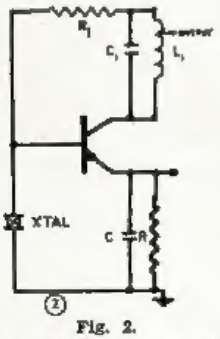


Fig. 2.

An oscillator multiplier circuit voltage fed to the top of the inductor. The inductor L1 is tuned to the desired harmonic output, and the fundamental output is available from the emitter.

* 3 Te Anau Avenue, Prospect, S.A.

• Whether designing small transistorised convertors, receivers or transmitters, there is always the problem of a suitable oscillator. The circuit must have good stability and yet be simple. It would also be advantageous if the circuit could be modified to become an oscillator multiplier stage. Such a circuit is described herewith.

DESIGN

A further advantage of this circuit is the simplicity of design. All that is required is the d.c. current gain of the transistor.

The emitter is designed (Fig. 1) to be at a potential of approximately —V/2 volts and the emitter current is determined by the power required out, the frequency of operation, and the transistor used. It is often important to remember the last two factors mentioned, for the cut-off frequency (and frequency at which the gain is unity) of a drift type structure transistor, is very dependant upon the biasing conditions. As an example, Fig. 3 shows a plot of cut-off frequency against bias conditions for a 2N384 operated in the grounded emitter configuration. Voltages (V/2) in excess of 4 volts and currents of the order of 1 mA. would be suitable for this transistor.

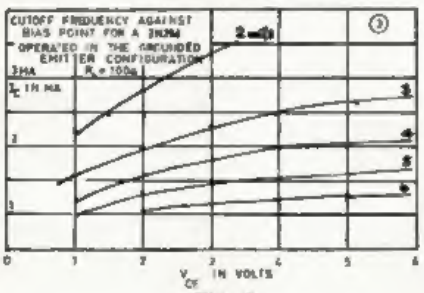


Fig. 3.

In general a supply voltage between —3 to —12 volts (for a p.n.p. transistor) and an emitter current of 1 to 10 mA. are quite satisfactory. In every case the transistor dissipation (Pc) should be checked to see that it is within specifications, at the maximum desired operating temperature.

$$Pc = (V \div 2) \times Ie.$$

Having selected a supply voltage and emitter current, R is defined by

$$R = (V \div 2) \times (1 \div Ie),$$

and $R = (V \div 2) \times (B \div Ie) = B\ R.$

Experience has shown that for most transistors, operating with tuned circuits or crystals, with fundamentals in the frequency range 1 to 16 Mc., maximum power out is obtained with the output shunt capacity C about 60 pF. However, any fixed value of condenser between 47 to 120 pF. is usually satisfactory.

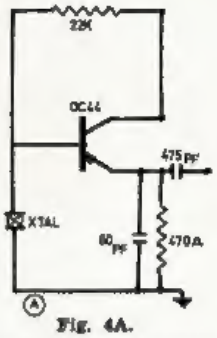


Fig. 4A.

An oscillator for a very low powered transistor transmitter. The collector is fed with —9 volts and the output is taken from the 475 pF. condenser.

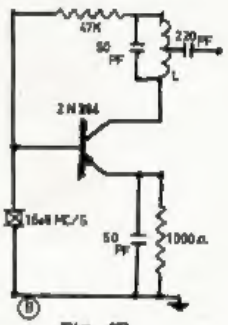


Fig. 4B.

An oscillator multiplier circuit suitable for a 50 Mc. transmitter. The top of the inductor L1 is fed with —9 volts. The coil consists of 4 turns of ½" diam. ½" long and wound with 16 gauge s.w.g. The output is taken from the coil tap via the 220 pF. condenser and feeds a 2N384 final or power transistor amplifier. The crystal is 16.8 Mc. for an output frequency of 50.4 Mc.

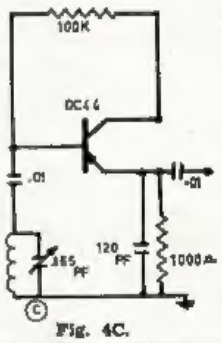


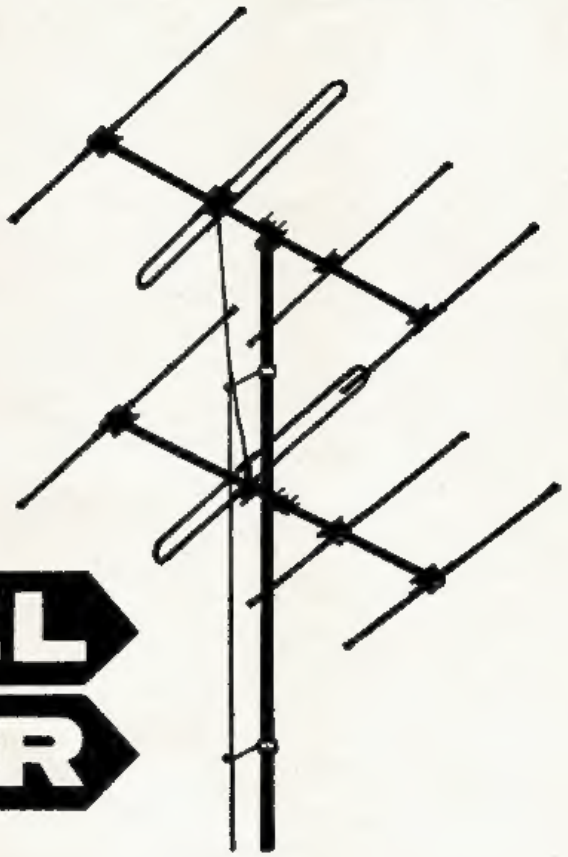
Fig. 4C.

A circuit of an oscillator suitable for building into a signal generator. The OC44 collector is fed with —9 volts and the output is taken via the 0.01 μF. condenser in the emitter lead. The coil L1 is tuned to the desired band by the 385 pF. variable condenser.

PRACTICAL CIRCUITS

Several oscillators have been designed and used in simple transmitters. Fundamental frequencies have been in the range 3.5 to 6.16 Mc., generating harmonics up to the 5 metre band. Three circuits in one are included in Fig. 4. The first is an oscillator for an OC44 ¼ watt low frequency transmitter (this has been increased to a ½ watt by using

(Continued on Page 13)



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MODERN RECEIVER FOR THE AMATEUR BANDS*

Design for the Home Constructor, Using the Latest Techniques and Circuitry

PART ONE

J. D. HEYS, G3BDQ

MANY Amateurs, including the writer, have discovered that the older type of communications receiver is at best only just adequate for the reception of s.s.b. signals. The stability, and more especially the diode detectors, of such receivers place their operators at a considerable disadvantage under present operating conditions.

A number of A1 station operators have given their receivers "face lifts" by building into them crystal lattice filters, stabilised power supplies, product detectors and new front ends. The results so obtained are often very satisfactory but usually the changes represent a compromise, and of course the re-sale value of such extensively modified receivers falls alarmingly.

To obtain a really modern and effective receiver it is necessary to pay £100 and more, and few younger members of the Amateur fraternity can afford such equipment.

A few years ago the writer designed and built a receiver for the h.f. bands which incorporated many sophisticated devices and circuits. It performed beautifully but was an enormous piece of machinery, with 18 valves and almost as many quartz crystals!

Realising that the design and constructional techniques were probably beyond the scope of most Amateur constructors no details were ever written up for publication, and attention was directed towards the development of a first class but much simpler receiver. Ideas and suitable circuits were freely adapted from contemporary designs, such as the Drake 2B, and crystallised eventually into a 9-valve receiver, tuning five Amateur bands, using easily obtainable components and not needing expensive or elaborate test gear to line it up.

DESIGN FEATURES

Essentially the receiver is a double superhet. on the 3.5, 7, 14 and 21 Mc bands, with a crystal-controlled first oscillator and a first i.f. tunable over 1495 to 2005 Kc. On Top Band it behaves as a normal single conversion superhet. with an i.f. of 460 Kc. A feature which may alarm some of the traditionalists is the fact that no r.f amplifier stage is used

In v.h.f. receivers the r.f. stage is fundamental to the satisfactory working of the equipment, but a close examination of the figures for mixer and aerial noise on the Amateur h.f. bands up to 28 Mc. reveals that in terms of signal-to-noise ratios an r.f. stage is unnecessary through this frequency spectrum

The pundits may then say that an r.f. stage will give some measure of selectivity to the receiver. It will, but only in terms of tens or hundreds of kilocycles depending upon the frequency, which can be achieved by other means ahead of the mixer.

Many communications receivers suffer from severe cross-modulation effects when extra strong signals are encountered, and even the AR88 is prone to this fault. In most cases of cross-modulation the r.f. stage or stages are to blame. The hotter the r.f. stage the more likely it is that you will hear your local b.c. station beneath old local G9ZZ's emanations. The well known Racal receiver does not use an r.f. amplifier, and most Amateurs would give a good deal to lay hands upon one of these fine pieces of commercial gear.

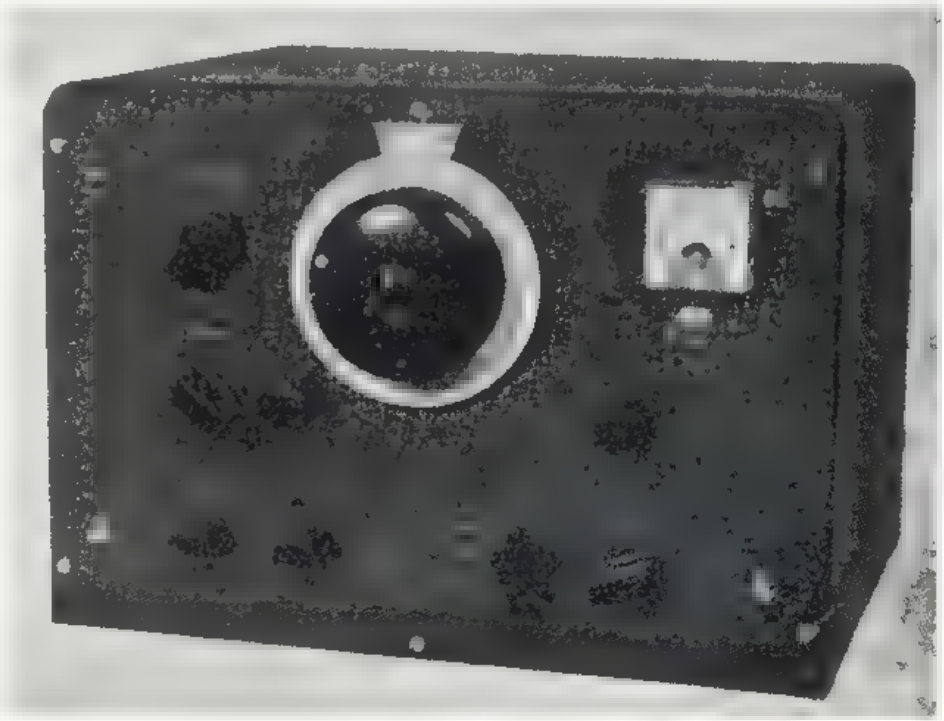
Of course when no r.f. stage is used every care must be taken to reduce mixer noise, for the first stage of a receiver ultimately determines its final noise figure.

• Over the years, we have published a number of designs for Amateur band receivers, and modifications for existing commercial types, all of which were contemporary with the time. Here is the latest constructional design for a specialised receiver for the Amateur bands, based on modern circuits and techniques, which will be within the scope of any Amateur experienced in careful constructional work. Our contributor, well known for his articles on sound practical equipment, himself designs and builds all his own gear under strictly Amateur workshop conditions—that is to say, without many of the facilities often available to the "professional Amateur". Hence, the receiver discussed here—which will be of great interest to many readers, whether or not they decide to build it for themselves—can be tackled with confidence in the final result being entirely satisfactory.

—Editor, "The Short Wave Magazine."

This has been done by using the 6CW4 Nuvistor triode, which was designed for low-noise r.f. amplifier and mixer service at v.h.f. Some measure of front-end selectivity is provided by a tunable bandpass filter with switched coils. On Top Band this is not needed and can be switched out of circuit.

Mixer stages have little gain, so this can be made up in the two 460 Kc. i.f. amplifier stages. Here advantage has been taken of the Mullard frame-grid pentodes type EF183. By using two i.f. transformers between the EF183 valves,



General appearance and front panel layout of the G3BDQ Amateur Band Receiver, which is a constructional design embodying modern circuitry and techniques. Block diagram (Fig. 1) shows circuit sequence and by adopting unit construction a neat and space-saving layout is achieved.

* Reprinted from 'The Short Wave Magazine,' June, 1962

back-to-back and very loosely top coupled, the overall selectivity is improved and is in the region of 2.8 Kc at 6 db down. A Q-Multiplier can be switched in and with its help selectivity may be sharpened and made variable down to a bandpass of 500 c/s., which should be pretty adequate for most c.w applications. The added complications entailed in providing a "notch" position were not considered worthwhile, for in the writer's experience, by the time the "notch" in the passband is correctly positioned the offending QRM has changed in frequency or gone completely.

When receiving s.s.b. or c.w. a product detector is brought into circuit. The R.C.A. beam-deflection valve type 7360 is available in this country and it performs admirably as a product detector or balanced mixer, for which purpose it was originally designed Having used conventional twin-triode product detectors it must be said that the 7360 is far superior, and in addition gives an audio gain of about seven times. This valve also performs as its own b.f.o. in a cathode tap circuit and in this way helps to pay for its higher cost.

For a.m. reception the writer prefers carrier detection, and one half of a 12AU7 twin-triode functions as an infinite-impedance detector which has very little damping effect upon the last i.f. transformer. The other half of this 12AU7 is wired as a diode to provide a negative a.v.c. voltage for the i.f. amplifiers.

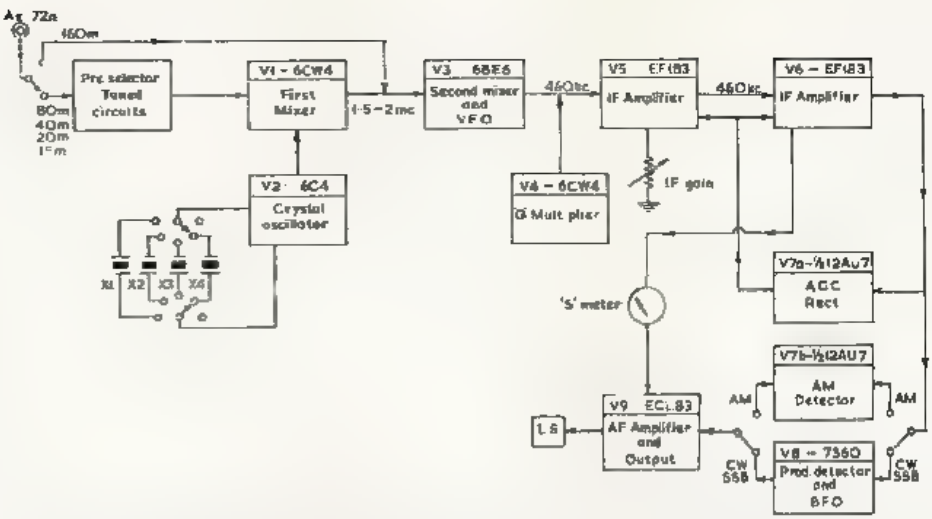


Fig. 1.—Block diagram of the Amateur Band Receiver designed by G3BDQ and fully described in the article. In line with the modern trend, no actual r.f stage is used, front-end selectivity being achieved by tunable band-pass circuits, coupled straight into the mixer—in this case a Nuvistor 6CW4, chosen for its special suitability and low-noise characteristic; the same type is used for the Q Multiplier stage, where the requirement is similar Full provision is made for a.m., s.s.b. and c.w. reception, the performance is of a very high order, and a neat and compact layout shape has been achieved on the constructional side.

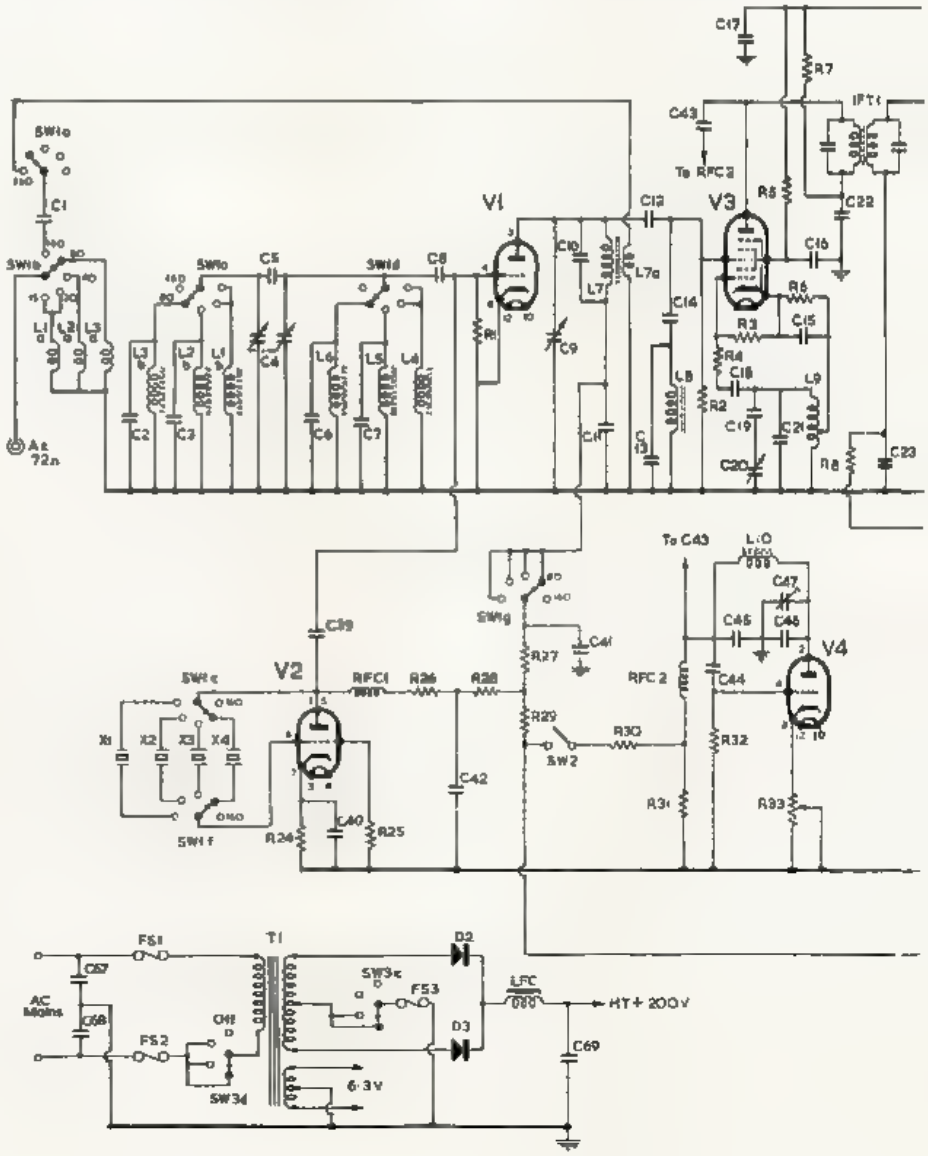


FIG. 2 VALUES

C1, C40, C42 — 0.0015 μF. tubular ceramic.
C3, C3, C6, C7 — 39 pF. silver mica.
C4 — 50 plus 50 pF variable.
C5 — 2.2 pF. ceramic.
C8, C9, C18, C47 — 100 pF. variable.
C10, C66 — 100 pF. silver mica
C11, C15, C16, C22, C23, C25, C31, C33, C56 — 0.01 μF. disc ceramic.
C12, C43 — 15 pF. silver mica.
C13, C59 — 680 pF. silver mica.
C14 — 0.005 μF. disc ceramic.
C17, C26, C27, C28, C34, C35, C36, C41, C48, C62 — 0.1 μF paper
C19 — 560 pF. silver mica.
C20 — 170 pF. variable.
C21 — 139 pF. silver mica.
C24, C52, C53, C63 — 0.005 μF. paper
C29, C57 — 0.5 μF. paper.
C30, C39 — 4.7 pF. ceramic.
C33, C60 — 0.05 μF. paper
C36 — 0.2 μF. paper
C37 — 120 pF. silver mica.
C44 — 800 pF. silver mica.
C45 — 0.0027 μF. silver mica.
C46 — 750 pF. silver mica.
C49 — 25 μF elect., 25v. wkg.
C50 — 0.001 μF d.sc ceramic.
C51 — 10 μF elect., 12v wkg.
C54, C55, C58 — 270 pF silver mica. 330 pF silver mica.
C61, C64 — 22 pF. silver mica.
C65 — 20 pF variable.
C67, C68 — 0.0018 μF disc ceramic, 1200v wkg.
C69 — 64 μF. elect., 350v. wkg.
R1, R8, R17, R25, R53 — 47,000 ohms.
R2, R9, R52, R54 — 100,000 ohms.
R3 — 150,000 ohms.
R4 — 10 ohms.
R5 — 250,000 ohms.
R6, R55 — 330 ohms.
R10, R33 — 10,000 ohms wire-wound pot.
R11 — 1,500 ohms

(Continued next page, last column)

An ECL83 triode-pentode completes the receiver valve line-up, and provision is made for either headphone or speaker reception. The S meter operates continuously and the circuit enables a forward reading 1 mA. meter movement to be used. Another advantage of this particular circuit is that turning down the gain controls does not pin the meter needle against its stop. Meter readings decrease in sympathy with the i.f. gain control setting.

Power supplies are built into the receiver and a pair of silicon power diode rectifiers help to keep down the heat and occupy very little space. No voltage stabilisation was found necessary. The Drake 2B receiver has no voltage stabilised supplies and anyone who has used one of these fine receivers will confirm that there is virtually no drift after a few minutes' warm-up period. The whole question of voltage stabilisation has been over-emphasised for many years, and it really dates back to the time when Amateurs endeavoured to run multi-stage transmitters from a single power pack. Experiments with the oscillator used in the receiver described here have shown that a 100% variation in h.t. voltage only changes its frequency by 200 c/s. Such a change in line voltage need hardly be expected!

THE FRONT-END UNIT

Work began on this section before the complete receiver design had been finalised. It is constructed on a small sub-chassis which mounts upon the main receiver chassis and can be thoroughly tested before it is installed.

Looking at Figs. 1 and 2, V1 operates as a conventional triode mixer with grid injection from V2, the crystal oscillator, which is a 6C4. Four switched crystals are used in a Pierce arrangement which does not call for any tuned circuits. The crystal frequencies may be either higher or lower than the mixer signal frequencies. By having them 1.5 Mc. lower a cheaper set of crystals can be obtained, but this is at the expense of some unwanted spurious beats or "birdies" within the tuning ranges. A better system is to have the crystals 2 Mc. higher in frequency than the lower band edges—however, this means that on all ranges other than Top Band the h.f. end of the tuning scale corresponds to the l.f. end of the band.

The two possible sets of crystal frequencies are shown in the table herewith:

Band	L.F. Crystals	H.F. Crystals
3.5 Mc.	2 Mc.	5.5 Mc.
7.0 Mc.	5.5 Mc.	9.0 Mc.
14.0 Mc.	12.5 Mc.	16 0 Mc.
21.0 Mc.	19.5 Mc.	23.0 Mc.

If ten metres is to be considered, four additional crystals will be needed for full coverage of that band. Overtone operation of crystals was tried, but found to be unsatisfactory. There was considerable pulling between the mixer and the overtone oscillators, and when on 21 Mc. tuning the pre-selector circuits to this frequency pulled the overtone circuit out of oscillation.

The 6CW4 valve must never have more than 70 volts on its anode, and it will operate satisfactorily down to 25 volts. V2 is also run at low h.t. voltage (about 30 volts) for very little injection is required at the grid of V1.

C9 tunes the anode circuit of the mixer and its spindle is brought out to the front panel for peaking purposes. L8 and C13 make up a flatly tuned circuit centred on the mid-i.f. frequency, around 1750 Kc.

Care must be taken when constructing the pre-selection tuned circuits. The two groups of coils are kept away

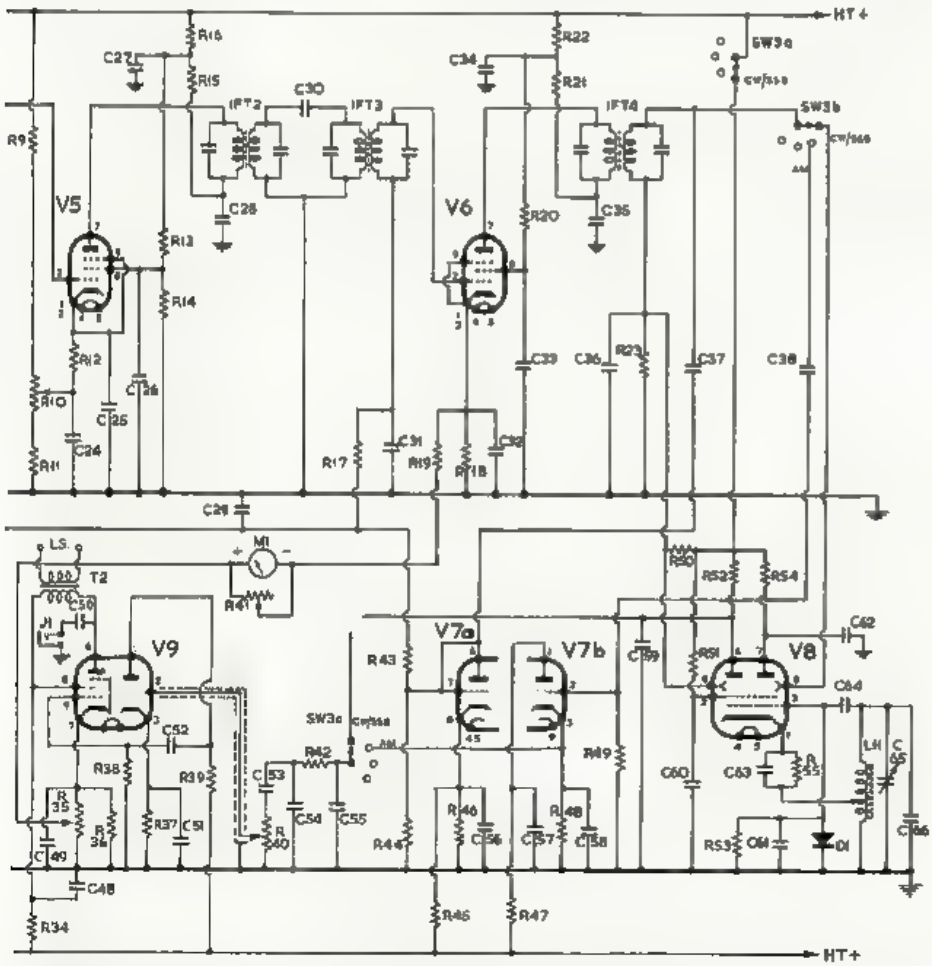


Fig. 2.—Circuit complete of the 8-valve double-conversion 15-160 mx Amateur Band Receiver discussed in the article by G3BDQ. On the h.f. bands, the front-end is crystal controlled—see block diagram Fig. 1—while on Top Band, the circuit becomes single-conversion to 480 Kc., which is the 2nd i.f. on all other bands. The components used are standard catalogue items throughout, and full advantage is taken of recent new valves, such as the 6CW4, the 7360 and the EF183. Base connections of the types used in this receiver are shown separately; it should be noted that the special sub-miniature sockets required for the 6CW4s are obtainable from suppliers of the valve.

FIG. 2 VALUES (Continued)

R12, R16 — 100 ohms.
R13 — 22,500 ohms.
R14, R46 — 82,000 ohms.
R15, R21 — 1,000 ohms.
R16, R22 — 4,700 ohms, 2 watts.
R19 — 47 ohms.
R20 — 39,000 ohms.
R23 — 18,000ohms.
R24 — 390 ohms.
R26 — 10,000 ohms.
R27 — 22,000 ohms, 2 watts.
R28 — 100,000 ohms, 1 watt.
R29 — 15,000 ohms, 2 watts.
R31 — 7 500 ohms.
R32 — 2 megohms.
R34 — 1,600 ohms, 10 watts.
R35 — 500 ohms wire-wound pot.
R36 — 3,000 ohms.
R37 — 620 ohms.
R38 — 220,000 ohms.
R39 — 33,000 ohms, 1 watt.
R40 — 1 megohm carbon track pot.
R41 — 2,500 ohms wire-wound pot.
R42 — 56,000 ohms.
R43, R44 —
R48 — 1 megohm.
R45 — 390,000 ohms.
R46 — 3,300 ohms.
R47 — 33,000 ohms.
R50 — 120,000 ohms.
R51 — 56,000 ohms.
RFC1,
RFC2 — 2 5 mH
IFT's — Standard 460 Kc IF transformers.
M1 — S meter 1 mA. movement.
LFC — 20 Hy 75 mA. choke.
T1 — Transformer, 250-0-250v at 60 mA., 6.3v twice at 3a.
T2 — Output transformer, 5,000 ohms to 2.5 ohms load
J1 — Phone jack.
SW1 — 7-pole, 5-way ceramic switch.
SW2 — On/off toggle switch.
SW3 — 5-pole, 4-way miniature ceramic.
D1 — OA79.
D2, D3 — Silicon power diodes, 600 p.i.v. at 450 mA.
V1, V4 — 6CW4 Nuvistor
V2 — 6C4
V3 — 6BE8.
V5, V8 — EF183, see text.
V7 — 12AU7
V8 — 7360.
V9 — ECL83.
X1, X2,
X3, X4 — Oscillator crystals, see text.

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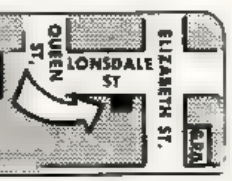

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from each other and the only coupling between them must be via C5. When correctly adjusted by means of their dust cores each pair of coils should tune to identical frequencies at the same setting of the two-gang variable capacitor C4. The 14 Mc. and 21 Mc. bands are both covered with the same coils. The pre-selector tuning control C4 should give a sharp peak to received signals and it will require re-adjustment when tuning over the 80 metre band. On 14 Mc., C4 will be practically at full mesh and on 21 Mc. it will be set near minimum capacitance.

Any receiver tuning the range 1.5 Mc. to 2 Mc. can be used as an i.f. strip for test purposes; the receiver aerial terminal is coupled to the output side of C12.

THE VARIABLE CONDENSER

A receiver stands or falls upon the stability of its oscillators, and the home constructor must give every care to the achievement of real stability. Good quality components should be used throughout, and special regard has to be paid to those making up the tuned circuit.

V3 is a 6BE6 mixer and oscillator. It is not usual practice in communications receivers to combine both functions within one valve, but the circuit given here, which is a version of the mixer-oscillator in the Drake, performs excellently. The oscillator is arranged to tune from 1955 Kc. to 2065 Kc.; this requires a variable capacitor swing in C20 of about 120 pF. when using the coil and silver mica capacitor (C21) specified: a well-made double bearing 170 + 170 pF. variable capacitor was found to be suitable, with C19 in series with one of its sections to limit the frequency swing; the other section of C20 is unused.

Suitable 1" diameter coil formers in polystyrene are obtainable from a well known chain of chemists shops, in which they are sold as—pill containers. A calibrated receiver covering the variable oscillator frequency range should be used to check oscillator performance.

All the components in the oscillator section, with the exception of R3, are mounted above chassis, under the variable capacitor, inside an L-shaped screen.

Contrary to normal practice the V3 screen dropper R5 has the rather high value of 250,000 ohms. The oscillator thus runs at very low voltage and is far less susceptible to valve heating and voltage variation. Experimentally increasing the screen voltage of V3 was found to degrade the signal-noise figure of the receiver. When satisfied that the oscillator tunes the correct frequencies the coil should be liberally doped with polystyrene cement to set its inductance and reduce vibration effects.

THE Q MULTIPLIER

All the valve Q multiplier circuits studied by the writer incorporate the 12AX7 twin-triode—so it was decided to break new ground and use a 6CW4 Nuvistor. It may appear strange to adopt a low-noise v.h.f. triode for a 460 Kc regenerative circuit, but the chief attraction was the small physical size of the 6CW4. The whole unit can be made up on a small sub-chassis to fit conveniently beneath the S meter. To obtain the full advantages of a Q multiplier the coil must have the highest possible Q, or goodness. This necessitates Litz wire windings on a ferrite pot core and such coils are best obtained from a component manufacturer. (See table of values.)

Resistors R30 and R31 were chosen to maintain the anode voltage of V4 at a very low value, actually between 5 and 5.5 volts. At this voltage the 6CW4 just slides into oscillation at the far end of the track of R33, the variable cathode resistor, which functions as a selectivity control. It may be noted that the i.f. coupling capacitor C43 has a value of only 15 pF.; other circuits examined seem to use at least 0.001 μF. in this position, which would heavily damp and thereby de-tune the anode circuit of V3. High capacity is not needed for proper Q multiplier action.

C47 is a pre-set frequency control which enables the Q multiplier to be centred on the i.f. passband.

HIGH GAIN I.F. STRIP

V5 and V6 are very high gain valves with a mutual conductance of 12.5 mA. per volt, and if instability or positive feedback are to be avoided they must be operated at the voltages recommended by the manufacturer.

Layout is important. Sensible in-line valve and transformer placing must be adopted and r.f. leads should be kept short.

Small brass shim screens were soldered across the valveholders to isolate the grid from the anode wiring. Before this was done both stages tended to take off when the i.f. gain control R10 was at maximum.

A.v.c. is applied to both valve control grids but only V5 is connected to the i.f. gain control circuit. The use of four tuned circuits between the i.f. stages enhances selectivity and brings the total number of tuned circuits at 460 Kc. up to eight.

Should the constructor wish to use somewhat cheaper valves for V5 and V6, types EF80 (which have the same pin connections as the EF183) may be used, but of course with a considerable reduction in i.f. gain.

(To be concluded)

RECEIVER COIL DATA

L1b, L4—14 turns 24 g. enamel, at 30 t.p.i. on 7/16" diam. dust core former, to tune 21 and 14 Mc.

L1a—2 turns insulated wire on earthy end of L1b.

L2b, L5—26½ turns 24 g. enamel, at 30 t.p.i., on 7/16" diam. dust core former, to tune 7 Mc.

L2a—2 turns as for L1a.

L3b, L6—50 turns 32 g. enamel, silk, close wound on 7/16" diam. dust core former, to tune 3.7 Mc.

L3a—3 turns insulated wire on earthy end of L3b.

L7, L7a—Bifilar wound coils: Primary (L7a) 11 turns 26 g. enamel, between lower turns of L7, which has 75 turns 32 g. enamel, silk, scramble wound on 7/16" diam. dust core former, to tune 1.5 to 2 Mc.

L8—30 turns 32 g. enamel, silk, close wound on 7/16" diam. dust core former.

L9—Approx. 24 μH., 41 turns 22 g. enamel, close wound on 1" diam. polystyrene former; tap 30 turns down the coil.

L10—Pot wound high-Q coil 120-150 μH. (Osmor or Electroniques)

L11 Standard 460 Kc. b.f.o. coil, or can be made from any small LW aerial coil by removing some turns.

A Colpitts Transistor Oscillator

(Continued from Page 7)

a 2N1499A oscillator driving a 2N1496), and the second an oscillator for a low power 5 metre transmitter. The last circuit is employed in a simple signal generator.

As a guide to the transistor required, the grounded base cut-off frequency should be not less than double the frequency of the crystal or primary tuned circuit used.

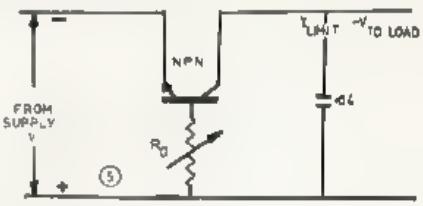

Fig. 5.

A simple current limiting circuit. Ro varies the limiting current. The limiting current is given by the equation,

I limit equals BV divided by Ro.

In concluding, I would like to add a word of warning to those who would endeavour to build a simple transistor transmitter. When detuning the final, excessive currents in this stage can occur, "blowing" the transistor. To prevent this a current limiting element should be incorporated; one such circuit being given in Fig. 5. (A p.n.p. transistor can be used if the limiter is inserted in the positive lead.)

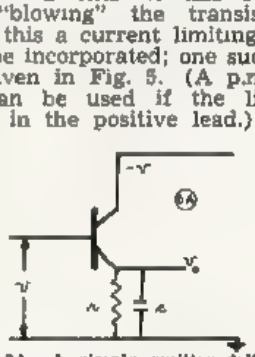

Fig. 6A.—A simple emitter follower.

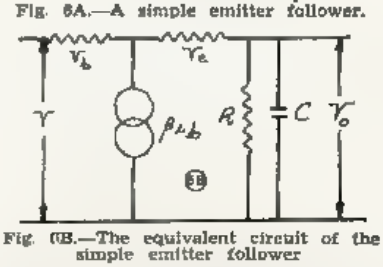

Fig. 6B.—The equivalent circuit of the simple emitter follower

The transistor is biased into saturation, such that when the nominated limiting current is exceeded the "pass" transistor comes out of saturation and appears as a high impedance. Care must be taken to ensure the dissipation of the "pass" transistor is not exceeded when it is limiting. ●

THE INVERTED "V" ANTENNA

BUD POUNSETT, VK2AQJ*

At long last the inverted V form of dipole antenna has gained some degree of popularity in Australia. In New Zealand, this antenna has found favour among many Amateurs over a considerable period, particularly for use on the eighty metre band. In New Zealand, the new operator must "serve his time" on 80 metres before graduating to the higher frequencies. Here in Australia, many of us have never transmitted in this band, due largely to the inability to instal such a long piece of wire in the back yard.

With the deterioration of conditions on the higher frequency bands, many of us are turning our thoughts 80 metrewards and wishing we had just a little more space. Even if your block is 136 feet long, where are you going to put the guys for the masts? Maybe in your neighbour's yard, but certainly not out in the street. If this sounds like your problem, this installation may be just the one for you. Even for the man with plenty of antenna space, this antenna has something to offer. Look at these points:—

1. Only one mast is required.
2. The radiator(s) also guys the mast.
3. Requires less yard length.
4. Not a compromise but a resonant antenna.
5. Fed with 50 ohm coaxial cable.
6. Easily adjusted to minimum s.w.r.

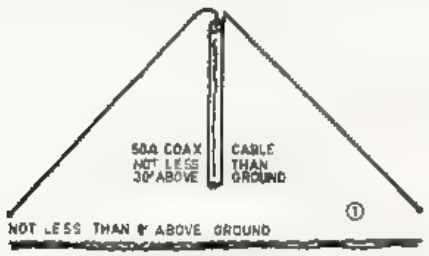

Fig. 1.—Elevation view of inverted V aerial, fed by 50 ohm co-ax. cable of any length. Note that the ends of the aerial must be not less than eight feet above the ground.

This antenna is just a simple dipole fed in the centre with 50 ohm co-ax. cable, supported at the centre and sloping down to the ends. The overall length of the wire is a little shorter than a normal horizontal half-wave and the feed point impedance is very close to 50 ohms. For those who use commercial transmitters with a fixed 50 ohm output, this is very convenient.

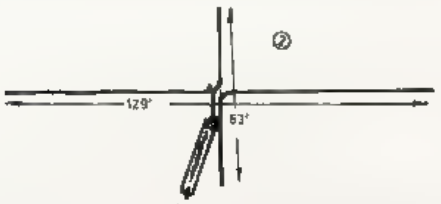

Fig. 2.—Plan of two inverted V aerials for 80 and 40 metres. One leg of each aerial is joined and connected to the co-ax. cable, thus giving two aerials at right angles to each other.

* 6 Alice Street, Queanbeyan, N.S.W.

The inverted V is a one-band affair, but the usual installation has two inverted Vees at right angles to one another, parallel connected, and fed with the same feeder. One is cut for 40 metres, while the other is resonant in the 80 metre band. This gives four wires spaced 90° from one another from the top of the mast to some convenient anchor points, usually fence posts. These wires also double as guys for the mast, making a very neat installation.

The height of the mast is not critical, anything from 30 feet on up will work well. The angle of slope can be that which is most convenient but keep the antenna ends out of reach of the children. There are a lot of r.f. volts here when you are transmitting. It is recommended that the ends be at least eight feet above ground. It is not absolutely essential to keep the antenna running in a straight line, the buildings, trees and so forth, may not allow this, but keep it as straight as possible.

You can figure how to insulate the feed point and anchor the antenna wires and co-ax. feeder yourself, but make sure to waterproof the end of the coaxial cable and secure the feeder to the centre insulator or mast to take the weight from the connections.

When you have your inverted V antenna in the air and ready to radiate, measure the s.w.r. at both ends of the band. If you have made the antenna purposely long, you will get a lower s.w.r. at the low frequency end. A suggested length to start with on 80 metres is 138 feet. By shortening the antenna at both ends by the same amount and checking the s.w.r., a ratio of 1 : 1 will be obtained at the chosen frequency with considerable ease. Do not cut the wire until you are satisfied with the s.w.r. readings. Loosely twist the wire back along the antenna until you get the s.w.r. down. You will be surprised how quickly you can do this job.

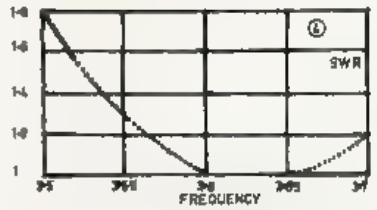

Fig. 4.—S.w.r. of an inverted V aerial at 80 metres. At 40 metres the s.w.r. is about 1 : 1 from 7 to 7.1 Mc., rising to about 1.1 at 7.15 Mc.

This is by no means a new idea. I wish to thank those various sideband operators who tried this radiator before I did and gave me the benefit of their experience. This article was prompted by the interest shown by many Amateurs during ragchews on 40 and 80 metres.

Figs. 1, 2 and 4 will give the picture. The figures given in the plan view are those of my own installation and will vary with each system, but are shown as a guide. To get optimum results, an s.w.r. indicator is very necessary. ●

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A GRID DIPPER FOR V.H.F.

A. C. RECHNER, VK5ZCR*

To keep cost down it was decided to use a "magic eye" tuning indicator and, because of its large display area and small size, type EM85 was chosen.

This indicator has a 9-pin Noval base and measures 2⅜" long by ¾" diameter. The EM85 has better sensitivity than a 500 μA. meter, only slightly less display area, and very much lower time constant. They cost about 12/-.

With a view to eliminating spurious dips in grid current, no r.f. chokes and/or by-pass capacitors are connected to the tuned circuit. This approach was quite successful and no abrupt dips in grid current are evident. On some ranges there may be a slight variation from one end of the tuning range to the other.

A 25 x 25 pF. Eddystone capacitor is used and with an RL18, no trouble is found in obtaining adequate grid current down to 320 Mc.

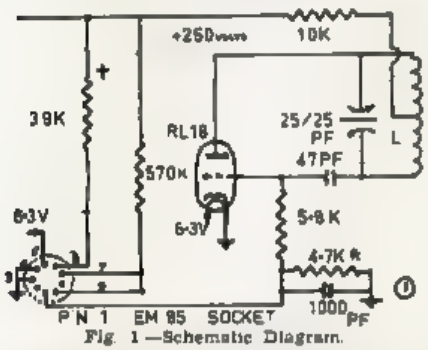

Fig. 1—Schematic Diagram.

* Adjust ±50% for required shadow angle.
† Adjust ±50% for required brilliance.

With even more careful layout this could probably be extended to 350 Mc.

The instrument is built in a small aluminium case measuring 1¼" x 1½" x 5½". The author feels that small physical size is important in permitting access to compact gear.

The EM85 socket is mounted on a small aluminium bracket taking care to see that the display area is visible through the window on the case (this window should measure ⅝" x 1").

The coil socket is a ceramic octal type. An 8-pin socket was chosen because it permits paralleling two or more pins to reduce lead inductance on the highest range.

Wiring is straight forward, the RL18 is soldered directly into the circuit, a hot clean iron will ensure that the tube does not crack during this operation. A heat sink may be used.

Short lead length is essential for good v.h.f. performance and the layout illustrated is recommended. The gang should be connected to the coil socket with strips of shim brass and two or three of the socket lugs may be paralleled for each side of the tuned circuit.

No attempt is made to supply coil winding data. A better approach is to build the loop for the highest frequency range and then set the g.d.o. to the lowest frequency on this range. A simple tuned circuit made up of a 3-30 pF. trimmer and 3 or 4 turns on a ¾" former should be tuned in the proximity of the g.d.o. until a dip in grid current is shown.

Then the next hairpin for the g.d.o. can be made and its dimensions adjusted so that a dip is obtained from the simple tuned circuit with the g.d.o. adjusted at or near the highest frequency on this second range.

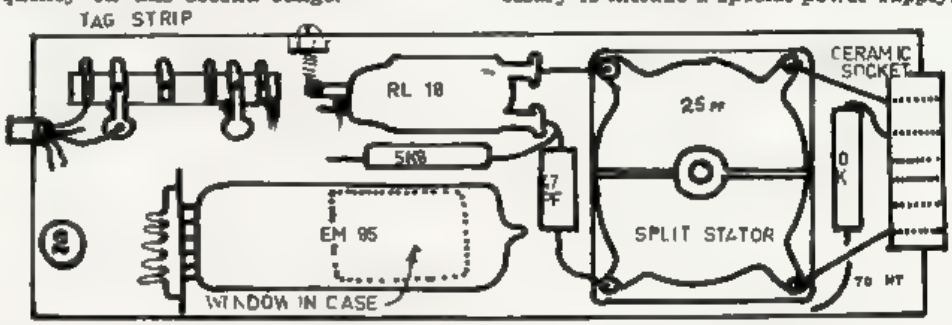

Fig. 2.—Suggested layout of the g.d.o. It is very important that short heavy leads connect from the variable condenser to the octal socket, if good performance at v.h.f. is needed.

This technique can be repeated for subsequent lower ranges and with care there will be no missed portions in the frequency spectrum, and yet no undue overlap between coils.

Loops are used for the two highest ranges, then conventional coils for the lower ranges.

The loop for the highest range is illustrated (Fig. 3A) and in the circuit shown should give response down to 320 Mc.

A cheap and effective method of making coils is also shown in Fig. 3B.

The sockets are old octal valve sockets. The coil formers can be made from ¼" or ⅜" polystyrene rod, with one end filed down to fit the hole in the spigot. (The author used wooden dowel with no apparent ill effects.)

The covers are transparent perspex pill containers which may be purchased from Selby's or any other large suppliers of chemical requisites. Ask for "8 drachm" plastic containers. They cost about 5/- a dozen and measure about 1" x 2½".

No cover is used on the loop for the highest range.

The tuning knob is an ordinary type numbered 0 to 100 around half the circumference. This is used in conjunction with a graph to read the frequency. If you could handle the small lettering it may be possible to calibrate the instrument direct.

As measuring instruments are usually not in continuous use, it seems unnecessary to include a special power supply. My grid dipper can be plugged into the converter power supply.

Further thought revealed that if the 10K resistor was connected straight to the plate of the RL18, the oscillator could be used to check crystals for activity, although this has not been tried, and may prejudice v.h.f. performance.

Constructional information is not given in detail, as many variations are permissable to suit individual cases (no pun intended). It would probably be in order to use another tube type, say a 955.

However, to get good performance above 200 Mc. the lead lengths should not exceed those shown in Fig. 2. ●

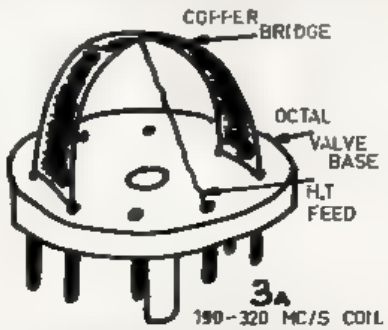

Fig. 3A.—Diagrammatic presentation of the v.h.f. g.d.o. coil. Best v.h.f. performance should result if the copper bridge is built in the form of an inverted "U". By so doing, pick-up will be increased and the inductance will be less as the sides of the "U" are brought closer together.

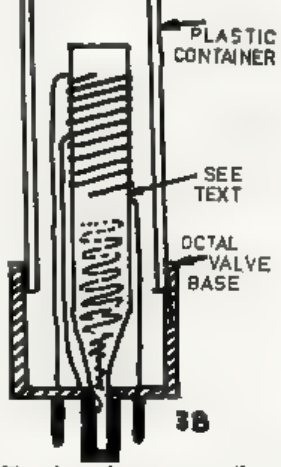

Fig. 3B.—The low frequency coil units are wound upon a dowel of wood or plastic, see text. A small plastic container protects the coils from damage and avoids the possibility of connecting with live h.t. circuits.

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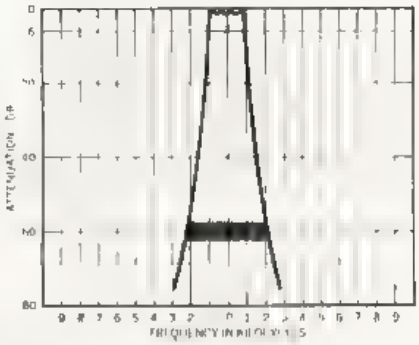

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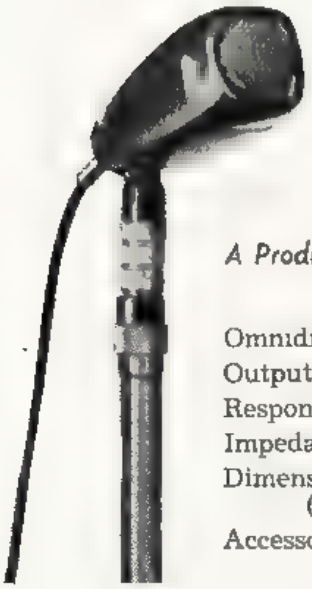

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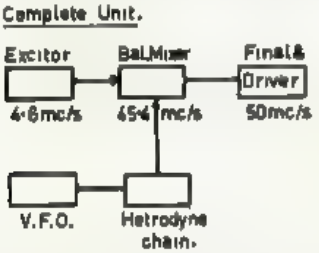
A V.H.F. SIDEBAND RIG

I. F. BERWICK, VK3ALZ*

THERE is ample literature available to enable anyone to build a sideband exciter at h.f. (say 9 Mc.). However, heterodyning such a signal to a v.h.f. band does present certain problems. Very little information has been printed on this latter subject. This article is an attempt to add a little to the store of information. Whilst a complete rig is described, the article is intended as an illustration of various problems which can arise and methods of tackling them.

The complete device, including regulated supplies runs to 38 tubes. Other VKs are getting on 50 Mc. s.b. with half as many tubes, so don't assume mine is the only method.



The main problems of v.h.f. sideband are:—

(1) Generation of spurious frequencies.
(2) Stability of the oscillators.
(3) Linearity of the sideband amplifiers.
(4) Acceptable audio response.

STABILITY

We shall deal with this first. It is generally agreed that for a s.b. signal to remain resolved it should stay within ±30 cycles of the mean frequency for an extended period. At 50 Mc. this means a stability of 60 cycles in 50,000,000 or slightly greater than one part per million. Not too difficult by today's standards. However, if v.f.o. operation is desired it means that heterodyne v.f.o. methods must be employed. You cannot meet this order of stability if you have to multiply the v.f.o. frequency a dozen or more times

I used a Franklin oscillator which appears to be about the best circuit available. A properly built Clapp circuit does appear to be very good also. VK3ZLC uses this circuit with excellent stability.

Mechanical stability should of course be good. A good scheme used by VK-3ASG is to remove the oscillator components of a 4-6 Mc. Command transmitter and mount them on a die cast chassis. In this way a first class v.f.o. can be had with little effort or cost.

It is essential to operate the crystal oscillators in the heterodyne chain so that they achieve the stability of which a good crystal oscillator is capable.

In order to assist in maintaining stability it is good practice to run the oscillator, its buffers and most of the heterodyning stages continuously. In my case I run all stages up to the 50 Mc. balanced mixer all the time.

In order to make netting easy a slow v.f.o. tuning rate is highly desirable, either mechanical or electrical methods can be used to achieve this.

If the v.f.o. dial is accurately calibrated, it can double as frequency meter for the band. But it is desirable to have a band-edge marker crystal as the calibration of even the best v.f.o's. does tend to drift off with the passage of time. I use a 5.5555 Mc. crystal multiplied nine times.

SPURIOUS FREQUENCIES

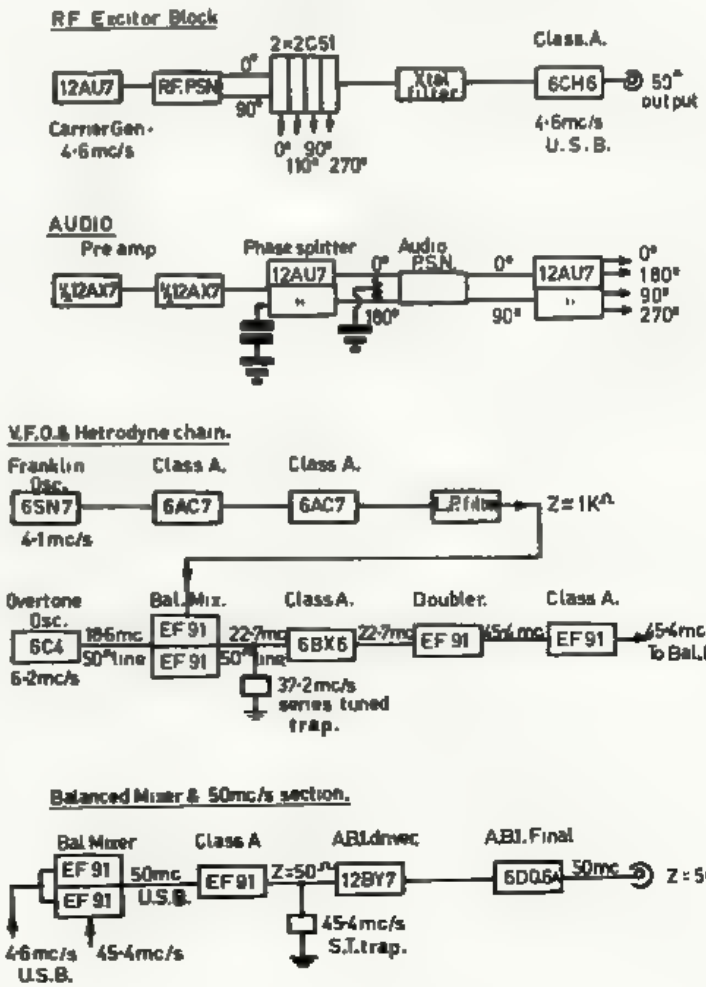
Since we are inexorably tied to heterodyning processes, both in the v.f.o. and in the transfer of the s.b. signal from h.f. to v.h.f., it is inevitable that we will run up against a number of unwanted frequencies where two or, more likely, three different oscillators are used, the number of unwanted frequencies generated can be quite considerable. Some of these may fall adjacent to the desired channel and be amplified and radiated as spurious and illegal signals, either inside or outside the Amateur band.

The problem can best be illustrated by my own particular case.

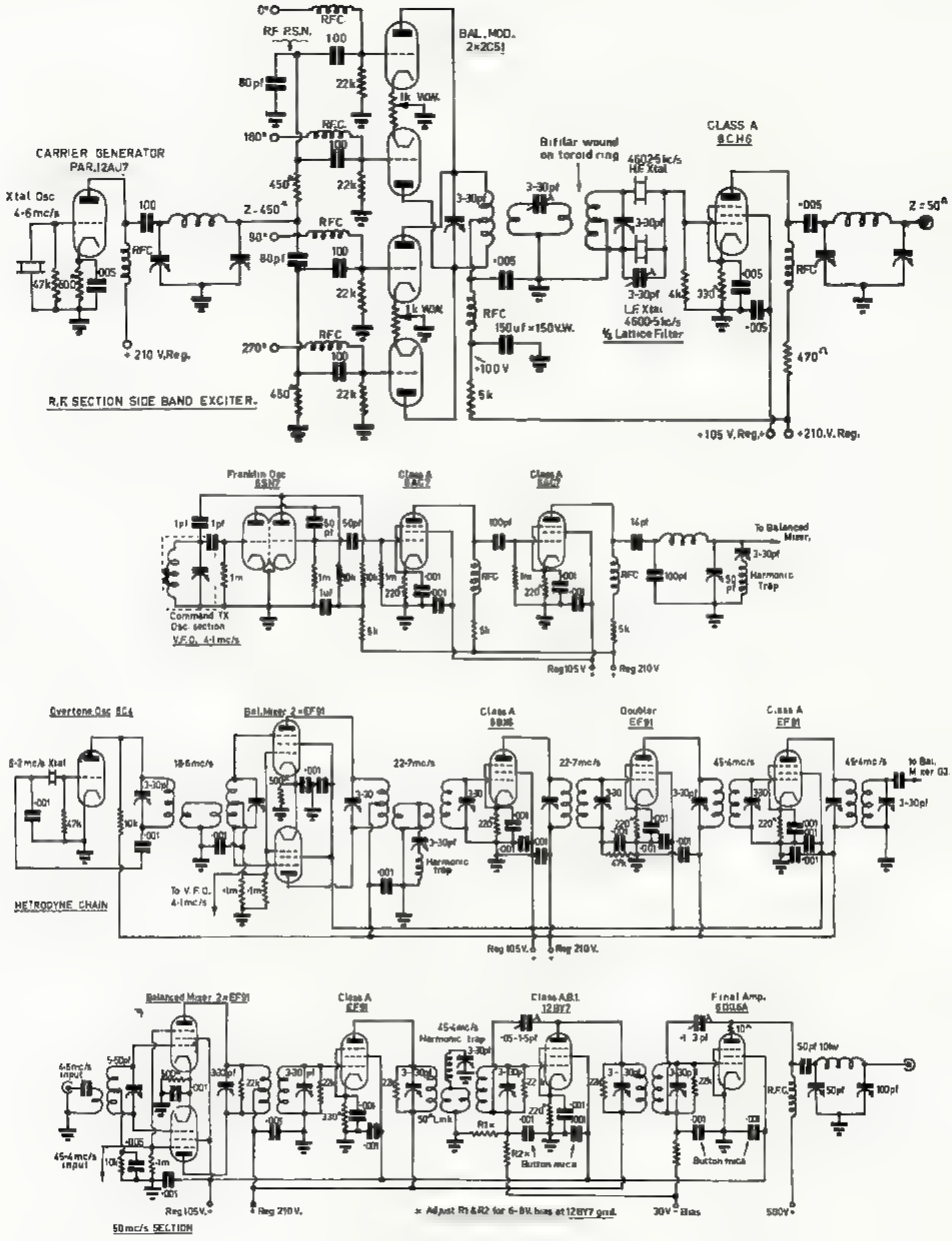
S.B. Exciter	V.F.O.	Harmonic	Overtone Crystal	
4600	4100		6200	eliminated
9200	8200	2nd	12400	eliminated
13800	12300	3rd	18600	wanted
higher	16400	4th	24800	weak
freqs.	20500	5th	31000	weak
very	24600	6th	37200	strong
weak	28700	7th	43400	weak
	32800	8th	49600	weak
	36900	9th	55800	weak
	41000	10th		
	45100	11th		

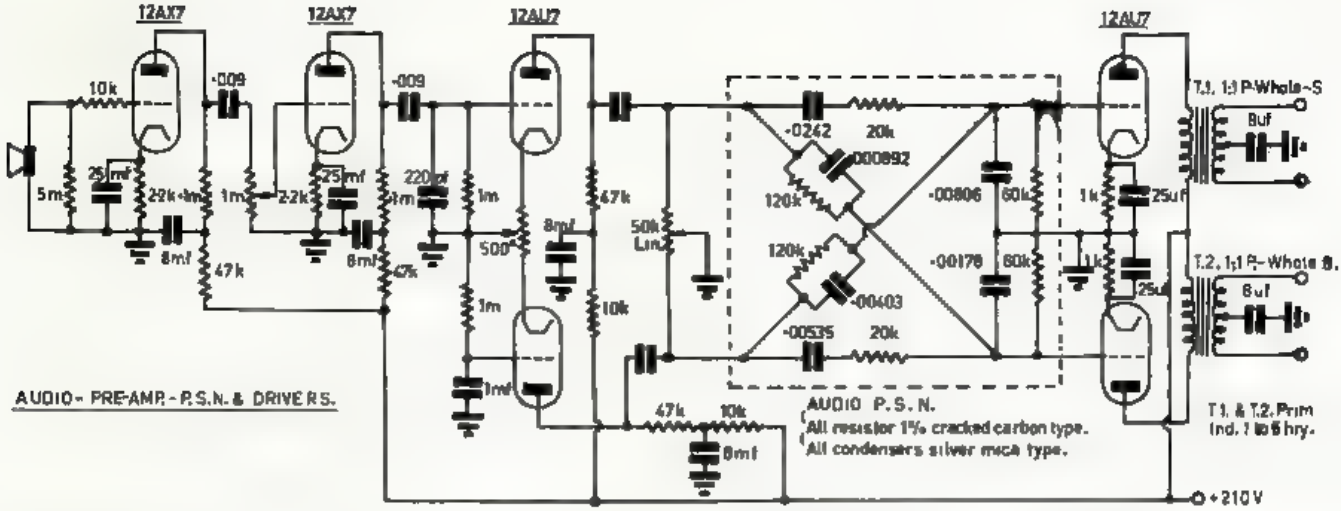
The wanted combination is 4600 and $2 \times (4100 + 18600) = 50{,}000$ kc.

TRANSMITTER BLOCK DIAGRAMS



* Lot 35, Loongana Ave., Glenroy, Vic.


CARRIER GENERATOR
PAR.12AU7
Xtal Osc
4-6mc/s
+210 V.Reg.
R.F. SECTION SIDE BAND EXCITER.
BAL. MOD.
2×2C51
1k WW.
Bifilar wound on toroid ring
4602-5kc/s
HF Xtal
LF Xtal
4600-5kc/s
½ Lattice Filter
CLASS A
6CH6
+100 V.
+105 V.Reg.
+210.V.Reg.
Franklin Osc
6SN7
Class A
EF91
Class A
EF91
To Balanced Mixer.
Harmonic Trap
Command TX
Osc. section
V.F.O. 4-1mc/s
Reg 105 V.
Reg 210 V.
Overtone Osc 6C4
6-2mc/s Xtal
18-6mc/s
Bal. Mixer 2×EF91
22-7mc/s
Class A
6BA6
Doubler
EF91
45-4mc/s
Class A
EF91
To Bal. Mixer G3.
To V.F.O.
4-1mc/s
HETRODYNE CHAIN
Reg 105V.
Reg 210 V.
Balanced Mixer 2×EF91
Class A
EF91
45-4mc/s
Harmonic Trap
Class A.B.1.
12BY7
Final Amp.
6BQ6GA
6-6mc/s
input
45-4mc/s
input
Button mica
Button mica
50mc/s SECTION
Reg 105V.
Reg 210 V.
* Adjust R1 & R2 for 6-8V. bias at 12BY7 grid.
30V - Bias
580V



Also we have:—

(1) 4600 + 45100 = 49700 (300 kc. outside the band).
(2) 9200 + 4100 + 37200 = 50500 (unreadable s.b. at 50.5 Mc.).
(3) 9200 + 41000 = 50200 (unreadable s.b. at 50.2 Mc. xtal controlled).
(4) 4600 + (49600 — 4100) = 50100 (tunes in opposite direction).

These are the combinations most likely, and which in fact did occur, to cause trouble.

Point one which emerges from the foregoing example is that if the spurious lies within a megacycle of the desired signal, you have no hope of getting rid of it by virtue of the selectivity of the 50 Mc. tuned circuits. You have to remove one of the causing frequencies before the 50 Mc. mixer. In my case I eliminated the 49.7 and 50.2 Mc. spuriouses by inserting a low pass filter between the last v.f.o. buffer and the first mixer.

The 50.5 Mc. was substantially reduced by trapping out the 37200 Kc

Point two. If one of the causes is strong the spurious will be strong, even though the other frequencies concerned are weak. Example, the 50.5 was strong although the 9200 is weak. The nigger in the woodpile is the strong 37200.

There appears to be two schools of thought re the problem of spuriouses. (1) Is to run all stages including mixers at a relatively high level, using traps to remove the unwanted frequencies. (2) Run all stages in the heterodyning chain, particularly the mixers, at a very low level and use a number of stages with plenty of tuned circuits to give the necessary selectivity to reject the unwanted frequencies.

Whichever method you favour there is no doubt that very careful thought must be paid to the choice of crystal frequencies if you are not to go prematurely grey solving the spurious problem.

In any case, plenty of tuned circuits, link coupling between stages, etc., is the accepted practice. Capacitive coupling is just not done.

LINEARITY OF THE S.B. AMPLIFIERS

This is not peculiar to v.h.f. s.b. but on account of the extra stages in use, does present a greater problem than at h.f. In my set-up the following r.f. stages must operate linearly as far as the s.b. signal is concerned.

(1) Balanced modulators .. 2 × 2C51
(2) 4.6 Mc. Class A 6CH6
(3) 50 Mc. balanced mixer 2 × EF91
(4) 50 Mc. Class A EF91
(5) 50 Mc. driver AB1 .... 12BY7
(6) 50 Mc. final AB1 .... 6DQ6A

With this number of stages one cannot hope to achieve good linearity by just setting the operating parameters per valve handbook and leave it at that.

One has to make proper linearity checks with a c.r.o. There are several methods; the method of linearity tracers (of W0TTK) is a good one, and used by VK3AHL. I use envelopes. I feed the signal to the c.r.o. at 915 kc. from the i.f. of a BC348. With this method it is essential to ensure that none of the receiver stages (including converter) is overloaded—a fairly low sweep speed is desirable if one is looking at speech waveforms (30-50 c/s.).

Linearity checks should properly be made starting at the balanced modulators (assuming audio is OK) and working towards the final. Once each stage has been adjusted for good linearity it is only necessary to keep the drive below the over-drive level for each stage—this is best done by ensuring that the final overdrives first and monitor the drive to the final or use a.g.c

One point, many tubes, particularly the high gm. t.v. sweep variety, require neutralising—the capacity bridge method is ideal for most single ended stages.

Instability cannot be tolerated in linear amplifiers.

The neutralising procedure I use is to couple the output of the stage to a c.r.o. (via receiver) and with plate and screen h.t. switched off, adjust neutralising capacity for a null. In this way a reduction of 30 db. in the feed through voltage can be achieved

A word regarding the final. I use a 6DQ6A, a tube familiar to most people as a t.v. line output amplifier. In 50 Mc. AB1 service it will give almost as much output as a 6146 and with a fraction of the drive and of course at a fraction of the price.

The circuit details I have given should enable anyone to tame this little fireball. Its linearity is excellent.

However plate and screen dissipation ratings are low so that constant carrier checks should be kept to a minimum if long tube life is to be expected.

ACCEPTABLE AUDIO RESPONSE

This problem is also not exclusive to v.h.f. sideband. However a few words seem to be in order here also. Regardless of whether phasing or filtering is used or both, as I have done, one usually has to tailor the response curve of the audio amplifiers in order to make up for deficiences in the sideband generating section.

The problems encountered in my exciter were as follows. Initially I had intended to use the exciter without the crystal filter, i.e. as an ordinary phasing exciter. However due to certain deficiences in the audio phasing section I could achieve no better than 25 db. s.b. suppression. In addition, carrier suppression was poor—about 20 db. I therefore installed the crystal filter, both carrier and unwanted s.b. suppression improved to 40 db. Snag was that the carrier generator crystal frequency was a little too low—with the result that the audio was seriously lacking in bass, and in addition the filter had a response curve which tended to accentuate the higher frequencies.

Filter band pass shape.
Fig. 1.

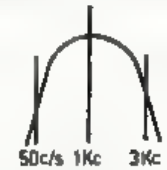


Fig. 2.

However by tailoring the response curve of the audio amplifiers to the shape shown (Fig 2) a much more satisfactory overall response was achieved

A little work along these lines improves the signal no end and makes the signal much easier to resolve.

There seems little doubt that if due consideration is paid to receiver selectivity and stability, the full theoretical gain of 9 db. for s.b. over a.m. can be achieved. ●

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★ Receiver sensitivity less than 1 microvolt at 50 ohm input.

★ Smooth audio response from 300 to 3,000 cycles provides excellent voice quality for both transmitting and receiving.

★ Control system designed for greatest ease of mobile operation. Front panel controls include: Main Tuning, Volume, Carrier Balance, Microphone Gain, Exciter Tune, P.A. Tune, P.A. Load, T-R Switch, Supply On-Off Switch, and Tune Switch.

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GREAT CIRCLE BEARINGS FOR AIMING AN ANTENNA

T. W. BARNES, VK2ABI*

AN Amateur interested in communications with a point a considerable distance away on the earth's surface, if he were using a frequency such as 3.5, 7, or 14 Mc., might consider a fixed directional antenna preferable to a moveable antenna

His aim would then be to erect the masts required in accurately determined relationship one to the other and to the path of transmission. This could not be done with certainty unless he first determined for his position the bearing of the receiving station.

This little article will show how this can be done, easily and without formal use of spherical trigonometry. In addition, the bearing having been determined, it will also be possible to say what other places are on the same path of transmission. It is a fact that a protractor and a map will very often give a result which is quite inaccurate if for no other reason than that a transmission path often appears as a curved line.

A great circle path of transmission is one which passes about the earth on its largest diameter; stations at the geographic poles have an indefinitely large number of great circle paths between them as have any other two points (poles) at opposite ends of a largest diameter. Other points on the earth's surface have only one great circle path between them, or two, in opposite directions, if the antenna is designed with a high front-to-back ratio. Each of these paths would, in general, have a different value.

We are all familiar with the system by which a spot on the earth's surface is located by the intersection of two circles, one a (circle) meridian of longitude and the other a circle of latitude. This system permits us to say, for example, that a spot is so many degrees east or west of Greenwich and so many degrees north or south of the equator.

A good globe map of the world presents this information angle true, but is often inconvenient to use for our purpose.

Sheet maps are projections of one kind or another by which information from the surface of the globe is cast on to a plain sheet of paper.

There are many kinds of projection; an atlas may show several, one more suited to present the equatorial regions, one the polar regions, and another giving a truer presentation of area and so on.

One projection, the stereographic projection, has the property of presenting data from a spherical surface, angle true, so that by the proper procedure bearings can be taken from a map presented in this projection.

Charts called stereographic nets can be obtained† on which circles of longitude and latitude are appropriately plotted. Fig. 1 is a reproduction of such a net 7.8 inches in diameter. On it the poles and the equator can be seen; on it all points in the same hemisphere can be plotted and any two points can be plotted angle true, although the bearing between them may not be immediately apparent. Such a chart is often called a Wulff's net.

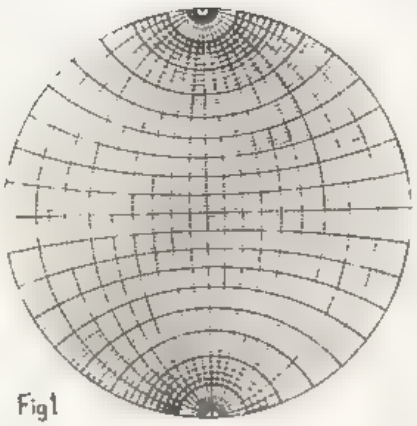

Fig1

On this particular net, circles of longitude and circles of latitude are plotted in general, every two degrees. and over most of its area it can be read to approximately one degree.

Counting along the equator ninety degrees from either end brings the eye to the centre of the chart.

If the chart is rotated about a drawing pin through this point the effect is as though the circles of longitude (great circles) in particular were rotated about the earth on an axis through this point at right angles to the paper. To avoid damage to the net, it is a good idea to stick a small piece of adhesive plaster to the back of it at this point.

An Amateur living in Sydney, 151 degrees east of Greenwich, can imagine that the earth is divided into two hemispheres, one containing all points west to 29° longitude west of Greenwich, and the other all points east to 29° west of Greenwich. Inspection will show that Bristol England and Johannesburg Transvaal are in the first category, and Winnipeg Canada, Val Praiso Chile, and Invercargill New Zealand are in the second

In the procedure to be described, we shall plot the difference in longitude between the points of interest as well as their latitude north or south of the equator.

If the target point is in the hemisphere west of Sydney (or Melbourne, etc.), the difference in longitude is the sum or difference of the longitudes, depending on whether it is west or east of the Greenwich meridan. However, if the target point is east of Sydney the difference is either the difference of the longitudes or 360° minus the sum of the longitudes, depending on whether the target is west or east of 180° of longitude; examples are contained in Table 1.

In determining the bearing, the following steps are taken for all points in the hemisphere west of Sydney; Bristol will be used as an example.

(1) A piece of tracing paper larger in diameter than the net is centred on top of the net on the pin through it and held stationary. The lines of the net must be plainly visible through the tracing paper.

Starting at the right hand side of the equator, count clockwise 34 degrees of latitude around the periphery and make a point on the tracing paper for Sydney. (See Fig. 2.)

Along the equator from the right count west 153 degrees of longitude and then clockwise 51 degrees of latitude. Mark this point Bristol.

Make a mark at the south pole of the net.

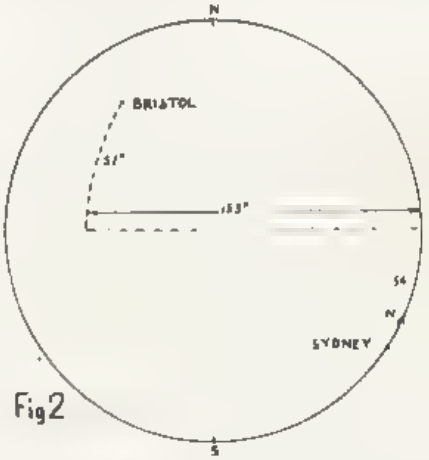

Fig2

	Longitude	Latitude	Diff. Longitude	G.C. Bearing
Sydney, Australia	151°E	34°S	—	—
Bristol, England	2°W	51°N	153°(W)	N 40°W
Johannesburg, Transvaal	28°E	26°S	123°(W)	{N 130°W {W 40°S
Invercargill, New Zealand	169°E	46°S	18°(E)	{N 137°E {E 47°S
Winnipeg, Canada	97°W	50°N	112°(E)	N 48°E
Val Praiso, Chile	71°W	33°S	138°(E)	{N 145°E {E 55°S

Table 1.

* Lot 81, Cabbagetree Lane, Fairymeadow, N.S.W.

† These nets can be obtained from the Institute of Physics and inquiry in Sydney might be successful. In Melbourne advice might be sought at the Department of Metallurgy of the Royal Melbourne Technical College.

It should be noted that an anticlockwise movement around the net from Sydney now represents a movement to the true north.

(2) Rotate the tracing paper clockwise until the point Sydney lies above the south pole of the net. The point on the periphery above the north pole of the net is the opposite pole to Sydney (29° W, 34° N). Mark this point The great circles on the net all pass through these points and Bristol and all other points in the hemisphere will be found on one of the great circles, perhaps by estimation.

(3) Trace in the great circle for Bristol and then count the number of degrees of longitude between the right hand end of the equator and this circle (40 degrees) and label the interval; see Fig. 3.

(4) Rotate the tracing paper anticlockwise until the south pole mark coincides with the south pole of the net. The great circle between Sydney and Bristol is now seen to make a direction 40 degrees west of north at Sydney; see Fig. 4.

Fig. 5 illustrates these steps for Val Praiso, representing points in the eastern hemisphere.

At step 4 in the procedure, the latitude and longitude of a number of points on the great circle of bearing may be taken from the net and transferred to a map. A smooth curve through these will show the transmission path and the places on it as it passes across the world.

By obvious adaptation, Amateurs who have rotary beams may construct a stereographic map of the west and east hemispheres so that the beam can be aimed with greater knowledge. The job is made simpler by the observation that like aircraft, radio waves are only secondarily concerned with coastlines and particularly with the borders of states. Cities and towns may therefore appear only as points on the earth divorced from country and coastline.

This method can be applied by adaptation, when the transmitter is at any other place; it is not applicable to Sydney alone. ●

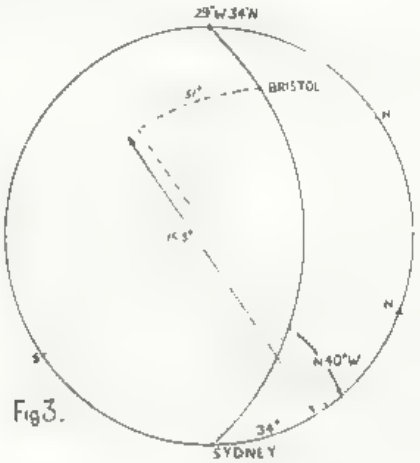

Fig 3.

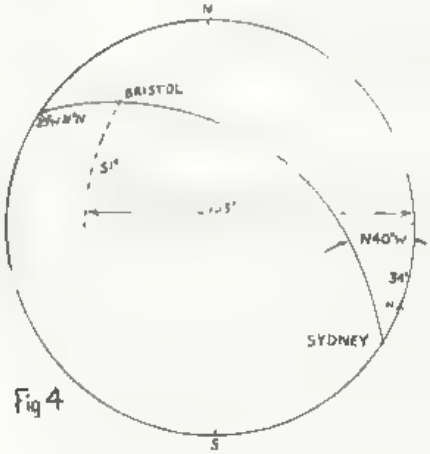

Fig 4

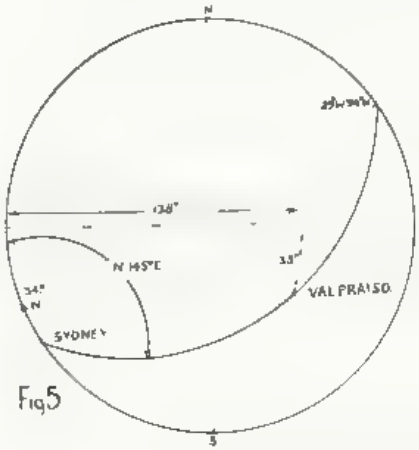

Fig 5

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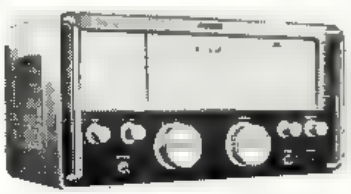

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★ Send for technical brochure.

THE C.D.O.

REV. BRO. D. KINSELLA, VK2AXK*

The C.D.O. is a Collector Dip Oscillator, but I don't suppose that the Amateur will change his ways, hence it will no doubt still be called a G.D.O. (Transistorised?).

A grid dip oscillator is an extremely useful item to have around the shack, and in this version, having its own self-contained power supply, it is an even more useful device for all the tasks that can be done with it. Particularly as it has no power cables attached, hence can be used on top of a tower, if required—of course getting it up there is an entirely different problem.

The C.D.O. is very easy to construct and an hour's soldering should see the unit almost completed. An OC44 transistor has proved useful up to 21 Mc. and the OC170 up to v.h.f., but other equivalent types could be used. The current amplifier can use any suitable transistor, but the OC70 is possibly as good as any, and also the least expensive.

Layout is not critical, but the circuitry associated with the LC circuit should have heavy direct wiring with very short leads if operation at v.h.f. is required.

One possible problem is the polarity of the diode, plus the fact that some diodes may be better at v.h.f. than other units. In this regard some experimenting could prove of assistance. If the meter does not read, then reverse the polarity of the diode, simple, but effective.

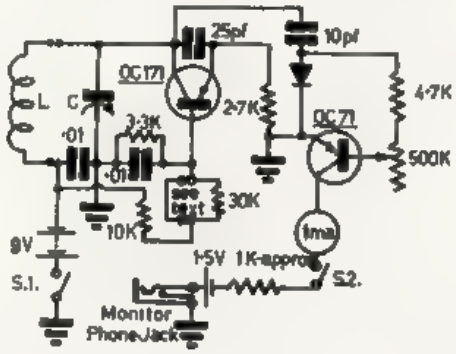
To conserve batteries, it is suggested that S1 be a push button type, thus unless pressed no power is applied. Hence if the unit is used near an operating transmitter, then no damage will result to the transistor. When used as an absorption wavemeter only the LC circuit, diode and meter are used.

To keep the unit compact a midget style movement should be used for the milliammeter. This need not be a calibrated type as its function is to indicate the dip in response, hence a scale is not needed.

It will be noted that no details have been given for the coils nor the associated tuning condenser. This has been done because each builder will no doubt wish to use the components he has on hand However, if starting from scratch, then it is suggested that an Eddystone variable capacitor be used as these units are very compact and are effective at v.h.f. Some condensers are erratic at v.h.f., as evidenced in the C.D.O. by the varying collector current as the unit is swung over the tuning range.

The fact that the coil requires not tapping is an added advantage, and the newer style "Willis" air wound inductances can be used with success. The correct combination can be found by reference to May "A.R." Data Sheet The ranges suggested for the C.D.O. are: 2-5 Mc., 5-10 Mc., 10-20 Mc., and 20-50 Mc. Reference to the circuit diagram will show that R1 is altered on the 5-10 Mc. range, being only 10K ohms; on the other ranges it is 40K ohms.

If a coil former with a four-pin base is used, then the switching of R1 can be done automatically by bridging out the rest of the resistor. Some formers are available with a moulded shell and if the air wound "Willis" inductances are used, these can be fitted inside the moulded shell, thereby giving maximum safety from accidental shorts when working upon live units and using the C.D.O. as an absorption wavemeter.



COIL BASE DETAILS.

2–5
10–20
20–50Mc/s

5–10Mc/s only

S.1. A push button switch.
S.2. Close for Monitor or Wavemeter operation.

Many readers will no doubt think that they cannot calibrate this unit. This is not so. A C.D.O. is a small low powered oscillator, thus its signal can be heard upon any receiver. In addition it is quite correct to calibrate the unit every half megacycle, closer calibration not being required, as the unit is not intended to be a precision source of signals.

To proceed with the calibration allow your receiver to warm up and then plug in coil 1, say the 2-5 Mc. range. Set the receiver at 2 Mc., then adjust the C.D.O. until a hetrodyne beat is heard in the receiver, which of course has its b.f.o. turned on. Then set the receiver at 2.5, 3, 3.5, 4, 4.5 and 5 Mc., repeating the same procedure at each step. By so doing a calibration curve or chart can be made for the C.D.O. However, care should be taken that image signals are not used for calibration marks. In addition it will be noted that as the higher frequencies are approached the dial markings will become closer together, this of course will only happen when the tuning condenser used has semi-circular plates.

The C.D.O. is a most versatile piece of gear and the reader is referred to past issues of "A.R." which have detailed how the unit can be used. In particular, the Anniversary issue of 1958 has a most interesting article Regrettably this issue is out of print, thus you will have to borrow a copy from a friend.

This circuit is not original, but has been based upon that which appeared in the A.R.R.L. Handbook, but since modified to use components available in Australia.

As a suggestion, why not re-build this unit into your existing g.d.o. case? If you do this then you will have a complete coil kit, tuning condenser, etc., already available and can then use the power supply from the old unit as a bias source. ●

* Christian Brothers' College, Frederick Street, Gosford N S W

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JAMBOREE-ON-THE-AIR

OCTOBER 20-22, 1962

Notifications of participation are being received from Scout Groups in increasing numbers. It is pleasing to note many new call signs and Group names on the list who have not taken part before. The main enquiry from these is what to do when they go on the air during the event.

The answer is simple "Call CQ-Jamboree, or answer CQ-Jamboree calls." Give the details of the Group you represent (or let the Scouts in your shack give them) and collect them from the station you contact. One or two Scouts per contact, can exchange names and ideas with those at the other station. Endeavour to contact as many other stations as possible in the time available.

It is not necessary to restrict contacts with Amateurs who also represent Scout Groups. Some who are ignorant of what is going on may appreciate all the details. Please make sure the log sheets are compiled and are returned immediately after the event.

Further information may be obtained from the following Amateurs who are helping with the co-ordination. For Central and North Eastern Victoria, VK3AUL, Arthur Lock, Smoko. North Western: VK3ZK, Jim Stevens, Beverford. Central Western: VK3AKW, Bill Kinsella, Lubeck. Gippsland: VK3TH, Gordon Morrison, Yinnar. Geelong area: VK3ABT, Jim Barber, Anakie. Melbourne: VK3ARL, Lin Brown, 53 Alwyn St., Mitcham (Tel. WU 3422), and VK3WC, Ewan Cameron, 59 Sydney St., Sunshine (Tel. 311-1673). Some of these stations will be on the air each Thursday evening on 80 metres.

Wishing you all a happy time during the event this year.

—VK3AGD, John Woodburn,
Branch Organiser,
Boy Scouts' Assoc., Vic.

★

The Publications Committee invites readers to submit good quality glossy photographs of subjects suitable for inclusion on our front cover. All photos (or negatives) will be returned to the senders.

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448.148 Kc.	457.407 Kc.	462.963 Kc.	468.519 Kc.	Includes sales tax and one
450.000 Kc.	Kc.	Kc.	470.370 Kc.	dual crystal socket.

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14,000 Kc., **£6/8/3**; 21,000 Kc., **£5/8/0**

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Sub Editor. BUD POUNSETT, VK2AQJ,
6 Alice Street, Queanbeyan, N.S.W.
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

CRYSTAL FILTERS

From the pen of Arie Bles, who contributed the interesting balanced modulator last month, we have some practical suggestions on what to put after the balanced modulator.

Arie writes: The number of Australian Amateurs using phasing method s.s.b. exciters certainly indicates that the elsewhere very popular FT241A crystals, ranging from 380 Kc. to 520 Kc. in 1400 and 1850 cycle steps, have never been readily available in this country. They certainly offer an easier and better way to obtain a stable s.s.b. signal than most phasing circuits, where phasing balance, carrier and sideband suppression have frequently to be adjusted.

For those who can procure a few FT241A crystals, maximum crystal economy is important. My experience with half and full lattice arrangements have indicated that little can be gained with the full lattice circuits, using twice the number of crystals. A simple half lattice with good quality i.f. transformers can produce a reasonably good filter, however, if four crystals are available, it is certainly better to use them as two half lattice filters in tandem, preferably with an amplifier tube in between. A.l.c. can be applied to the amplifier to great advantage. It is not necessary to have perfectly matched crystals as strictly required in a full lattice circuit.

Another suggestion is to use a stable self-controlled oscillator circuit for the carrier source. This saves a crystal, that would need to be slightly higher or lower in frequency than the filter crystals. This self-excited osc. facilitates the easy adjustment of the oscillator frequency to the proper point of the slope of the filter shape curve. This gives better carrier and sideband suppression.

FT241A crystals of the two digit number series differ approximately 1850 cycles between

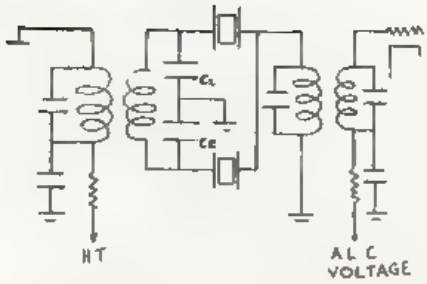

Fig. 1.—Half Lattice Crystal Filter.

channels and provide a filter of 2.500 to 3.000 cycles bandwidth, just right for voice transmission.

Referring to Fig. 1, C1 and C2 are equal in value to 1%, twice the capacitance of that originally used in the i.f. transformer. Adjust the i.f. transformer primaries and secondaries to the mid-frequency of the filter and forget them.

In building a crystal filter in the 400 to 500 Kc. range, be confident of easily achieving an entirely acceptable passband with a good shape factor and limited ripple, regardless of pictures Nos. 4 to 6 on page 6 of the August '62 "A.R.," or VK3QL's comments on the crystal filters in the correspondence of last month's "A.R." issue. With two half lattice filter sections, isolated by an amplifier stage, the overall shape factor is at least as good as that of a standard mechanical filter, will be bulkier but costs shillings instead of pounds if one shops around for components. FT241A crystals may be regarded as obsolete by 3QL, but hermetically sealed special crystals are really not a necessity on the lower frequencies. High frequency crystal filter requirements is an entirely different story.

For those who may require a set of crystals, Arie has a limited number available at 10/- per set of four crystals. These are matched to plus or minus 10 cycles and at the price are way below cost. Send your request to Mr Arie Bles, 22 Plateau Road, Springwood, N.S.W.

RECEIVER A.G.C.

The most satisfactory form of automatic gain control in a sideband rx is that obtained from the audio section preceding the volume control. The VK2AQJ BC348 uses a rather complex circuit employing two triodes and three diodes (12AU7, two 6AL5s). This a.g.c. circuit appears in the A.R.R.L. Sideband Handbook (2nd edition) and worked extremely well. With all the tubes involved, it should work well too!

Ron VK3AHJ uses the circuit shown in Fig. 2, and reports that though very simple, works very well also. The circuit requires little or no explanation, the only special requirement being a diode with a high back resistance.

In my own case, I found that when the audio derived a.g.c. was first connected to the a.g.c. line, the attack time was very slow. After investigation, this was found to be due to the

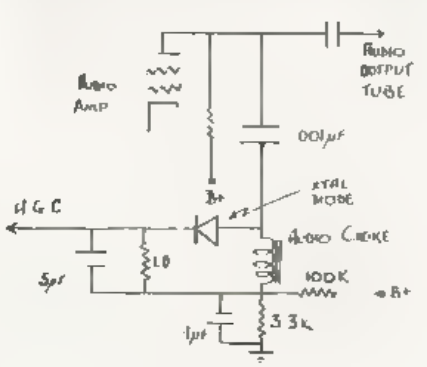

Fig. 2.—S.s.b. A.g.c. System.

time constant of the a.g.c. line. 0.01 μF capacitors and r.f. chokes were substituted for the 0.1 μF. capacitors and 100K resistors used as a.g.c. filters. This proved very effective and now round tables with signals from S5 to S9 plus are all the same level.

FREQUENCY STABILITY REQUIREMENTS

Wing Commander Colin Harvey, of the R.A.A.F., stationed at Singapore, and presently signing VS1AU, sent along this interesting treatise:

Ever read the documents of the Ninth Plenary Session of the International Radio Consultative Committee? Neither had I till in the line of duty, it was necessary to be aware what new recommendations were made at Los Angeles in 1959.

The old Atlantic City regulations of 1947 have been varied by C.C.I.R. in some important aspects. One in particular, of vital interest to the Amateur Service is that of frequency allocation in the h.f. band, because failure to be realistic here must result in increased pressure on Amateur band allocations.

C.C.I.R. formulate the standards used to establish "the present state of the art" and hence the basis for discussion at the I.T.U. and like conferences. For instance, it is recognised officially that "the bandwidth occupied by a transmission should comprise 99% of the total mean power, and that ½% of the power should be equally above and below the limits determined by the 99% distribution." The effect of spurious emissions is excluded, as these are supposed to be 40 db. below the fundamental and in any case, not to exceed 50 milliwatts at the antenna.

Now "the frequency band assigned to a station" is provided on the basis of "necessary" bandwidth PLUS twice the absolute value of the frequency tolerance! The words in quotation marks have particular and specific meanings, but for the present purpose the normal interpretation is satisfactory.

It is C.C.I.R's. intention to have improved (reduced) frequency tolerances achieved within three years (from 1959), i.e.:

Frequency and Service	Cycles per Mc. Old	New
1.8-4.4 Mc. (less than 200w.)	100	100
Mobiles	200	200
4-29.7 Mc. (less than 500w.)	50	50
Mobiles	200	200
29.7-100 Mc (less than 200w.)	200	50
100-470 Mc (less than 50w.)	100	50

Tighter tolerances are required of other types of transmitter, but the above table tends to indicate what C.C.I.R. consider to be the present state of the art in certain fields.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5AB	45	276	VK6KW	4	206
VK6RU	2	269	VK3ATN	26	204
VK3AHO	51	255	VK4HR	13	193
VK6MK	43	252	VK4RW	23	184
VK4FJ	21	236	VK3GB	50	183
VK3WL	14	211	VK5WO	59	178

Amendment:
VK4DO 20 159

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	304	VK6RU	18	229
VK3CX	26	288	VK3BZ	6	222
VK2QL	5	279	VK4HR	8	218
VK4FJ	29	270	VK2XU	48	213
VK3NC	19	261	VK7LZ	17	212
VK3FH	15	226	VK3YL	39	211

Amendments:

VK3YD	27	203	VK3ARX	66	168
VK4DO	20	197	VK3JF	70	153
VK3RJ	42	158			

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ACX	6	300	VK2AGH	53	252
VK6RU	5	291	VK3HG	3	251
VK4FJ	32	276	VK4HR	7	233
VK3NC	77	265	VK3BZ	4	231
VK3AHO	76	259	VK3JA	43	229
VK6MK	74	256	VK3WL	45	225

Amendment:
VK4DO 15 212

New Member:
VK5WO 67 214

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Sub Editor: ROBERT YOUNG, WIA-L3076,
14 Alverna Grove, Brighton, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

VICTORIA

Last general meeting of the Group we had an attendance of 15 members. Due to the Secretary and Vice President being absent, the annual elections for office bearers will not be held until the Sept. meeting.

Wondering how you all went in the R.D. Contest. I, myself, operated for most of the Contest but tossed it in at about 4.30 Sunday morning and started again around 11.30 a.m.

The project for the construction night is a 6 mx converter and it is moving along very well. Circuits and general information about it will be available on the construction night in September.

Maurie L3055 and family went over to VK7 land a few months ago and it seems they have decided to stay over there for good. He took his S39 rx over with him recently, but due to very rough handling by the airways, received it in a somewhat battered mess, with valves out of their sockets and a smashed main tuning drive, etc.

The visit for the month of Sept. was well attended by a dozen odd members. We all were shown how GTV9 operates from A to Z and also Radio 3AK. We saw the swimming pool and a few YLs, but not in the pool!

RADIO MAIL

The mail received this month is from the following: Mac Hilliard, Colin Walker, Darrell Coggins, Ian Thomas, John Kennedy, Noel Harrison and Tom Kennedy.

Mac L3074 has been fairly active and reports that his 20 mx beam is still working very well except the rotary shaft to the motor requires a little tightening. The rx in use at the moment is an AR88 which is on loan and will be going back to the owner very shortly. Conditions on 21 and 28 Mc have been very poor, in fact 28 Mc. was found to be dead.

On 1st Sept. at 5.15 p.m. there was a very nice opening on 20 mx to Europe over the long path for a short time. Conditions at night however are slowly on the improve. QSL cards to hand this month are K6WGN and SV1AR.

Colin Walker, who is a hospital patient in VK5 land, decided to liven the place up a bit with some music, but as it turned out Colin's b.c. rx interferred with another patient's rx, which turned out to be an AR88. So since then Col's ideas have been turned to Ham Radio. He is now doing a correspondence course in Radio Technology so that an A.O.C.P. ticket can be obtained in the near future. In the meantime he is a member of the VK5 S.w.l. Group and also has a new rx—a Lafeyette HE30. Quite a few DX stations have been picked up with only 40 odd feet of shielded wire hanging out of the window.

Stations heard on 20 mx include KL7NE, KB6BZ, WA9GXO (at Seattle World Fair), VR5AR, VE7BDR, XE1IL, XE1EVS, VS1AO, VS6EQ, JZ0PN in contact with KL7BJW, KX-6BU. Occasionally some DX is heard on 40 mx, but due to electrical interference from the hospital's equipment, very little is heard on that band. A total of 19 zones and somewhere in the vicinity of 300 DX stations have been heard to date. Colin even took part in the R.D. Contest and heard 191 stations, but it seems he logged both stations' RST numbers, which is **not** permissable.

Darrell L3041 is still using an AR8 rx and has recently erected a single wire centre fed half wave antenna 20 ft. high. During the Sept. school holidays, Darrell will be travelling to VK7 land, but unfortunately will not be able to do any s.w l'ing.

Graham L3048 borrowed a 3BZ rx from 5KC for the R.D. Contest and has also been hearing a few Ws on 14 Mc. The new 160 mx band seems to be very interesting. Don 3AKN says that he has worked 30 stations with 14 watts. Reception in the city seems to be worse than that in the country due to interference from t.v. line oscillator harmonics and broadcast set oscillator radiation.

Ian L3065 has not been very active of late. Ian had a ball during the R.D. Contest—he listened for 18 hours and massed a good score. The DX total is gradually improving with a few cards coming in at odd times. A total of 131 cards have been sent out for the year and has received 23 returns.

John L3106 has done little listening over the past eight months. About two months ago John got all his equipment working but the radio bug still had little enthusiasm. An attempt was made at the R.D. Contest but the points obtained was not very impressive. The current activities have been limited to overseas b.c. listening and a little on 14 Mc.

John is in urgent need of a circuit of a converter, preferably not to elaborate in design, to tune 3-7 Mc., using octal or fairly common tubes. Hope someone can help.

Noel L3101 unfortunately has not been very active due to recuperating from his recent illness. However a few new countries have been logged during the month. Stations heard on 20 mx: VR2KI, W6HLH, W6QMI, KH6DUE, W5DXM, K5THB, KL7DPE, ZL1FH, VE7BBG, KG6RC, VE3RG, VR4CB, K9EWL, K9UEI, 9M2CP, VQ2IE, ZE2JA, EA3JE. 160 mx, VK-3RZ, 3AKR, 3AMC.

Tom L3112 is wondering if anyone can assist him with a loan or a sale of the original handbook for the AR8 communications rx. His AR8 is out of operation since receiving it from a radio shop who undertook repairs and installed a noise limiter to Tom's requirements, but alas it won't work at all. Hence the reason for the handbook. As a listener, Tom has recently turned to making experimental recordings from the t.v. as conditions for s.w.l. have been very poor of late. For recording, he is using the mike on top of the t.v. set with very good results except for a slight echo effect which he believes is the excepted thing these days. 73, Robert L3076.

DX LADDER FOR OCTOBER

	Countries Conf	Countries Hrd.	Zns. Conf.	S.s.b. Conf.	S.s.b. Hrd.	W Stat.
E. Trebilcock	277	282	40	—	—	50
D. Grantley	101	249	27	14	90	34
A. Wescott	84	159	31	33	92	—
M. Hilliard	69	209	33	9	107	11
M. Cox	53	217	27	17	128	15
C. Aberneathy	42	93	26	—	—	13
N. Harrison	38	93	27	—	—	28
P. Drew	33	180	19	7	93	4
P. Fields	30	133	—	—	—	—
I. Thomas	25	134	18	7	88	11
D. Jenkins	10	141	7	—	—	—
H. Burger	6	185	5	1	19	—

R.S.G.B. 7 Mc. DX CONTEST

Duration: The two sections of the Contest will take place in each case between 0800 G.M.T. on the Saturday and 2400 G.M.T. on the Sunday as follows:

Phone, October 27-28, 1962. **C.w.**: November 3-4, 1962.

Eligible Entrants: The Contest is open to licensed Amateurs in all parts of the world.

Contest Exchanges: An exchange of RST (or RS) reports followed by a three-figure serial number starting with 001 for the first contact and increasing by one for each successive contact and for each separate section (for example, 59003, etc.) must be made before points can be claimed.

Operators: Only the entrant will be permitted to operate his station for the duration of the Contest.

Entries must (a) be clearly typed or written on **one side only** of foolscap paper; (b) log sheets must be ruled in columns headed (in this order): "Date/Time (G.M.T.)," "call sign of station worked," "my report on his signals and serial number sent," "his report on my signals and serial number received," "band," "leave blank," "bonus points," "points claimed"; (c) be addressed to the **Contests Committee, Radio Society of Great Britain, New Ruskin House, Little Russell St., London, W.C.1, England,** the name of the contest being clearly shown on the top left hand corner of the envelope which must be **postmarked not later than November 19, 1962.**

Scoring: Overseas stations may only claim points for contacts with British Isles stations (G, GB, GC, GD, GI, GM and GW).

Overseas Stations. Each completed contact with a British Isles station will score five points. In addition, a bonus of 50 points may be claimed for the first contact with each British Isles country—numeral prefix, i.e. G2, G3, G4, G5, G6, G8, GB, GC2, GC3, GC4, GC5, GC6, GC8, GD2, GD3, GD4 GD5, GD6, GD8 GI2, GI3, GI4, GI5, GI6 GI8, GM2 GM3 GM4, GM5, GM6, GM8, GW2, GW3, GW4, GW5, GW6, GW8. A further 50 bonus points will be scored for each additional ten stations worked in each of the above categories.

Awards. Certificates of merit will be awarded to the overall leaders and runners-up in each section and the leading station in each of the other five British Isles country-prefix zones. Certificates will also be awarded to the leading station in each overseas country, VE, VK, W/K, ZL and ZS call areas counting separately.

SAMPLE COVER SHEET

R.S.G.B. 7 Mc. DX Cont., '62. Claim. Score ....

Section ..... Call Sign .....

Name .....

Address .....

Transmitter ..... Power Input ..... watts

Receiver ..... Aerial(s) .....

DECLARATION: I declare that this station was operated strictly in accordance with the rules and spirit of the Contest and I agree that the decision of the Council of the R.S.G.B. shall be final in all cases of dispute. I certify that the maximum input to the final stage of the transmitter was ..... watts.

Date ..... Signed .....

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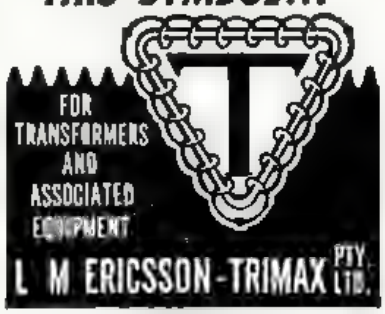

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VHF

50 – 144 – 288 – 576 – 1296 Mc.

Sub Editor: BILL ROPER, VK3ARZ,
Lot 59, Orchard Street, Mount Waverley, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

As is usual at this time of the year, activity on the various v.h.f. bands throughout Australia has been quite low. No doubt the winter weather will be blamed for this (it would be nice to kid ourselves that everybody is taking the opportunity to build equipment for the so-called DX season), but I am sure that a lot of the absences are because DX openings, etc., are not plentiful during the winter months.

This would seem to be a strange attitude for Amateurs to take. Almost anybody running one watt to the proverbial piece of wet string can work DX galore during the summer months. On the other hand, to snare that weak, QSB ridden DX signal in the middle of winter requires experienced, patient operating and efficient equipment.

It is a far greater thrill to work DX under these conditions and more worthy of the Amateur spirit, than having armchair contacts with the same fellow with the assistance of mighty temperature inversions, sporadic E, etc.

Also, and this is worthy of serious thought, we are always pleased that there is somebody "out in the bush" to provide the other end of the summer DX contacts (this applies mainly to two metres and above), but what happens to these chaps during winter?

They are not able to have cross-town rag-chews like the Amateurs in the "big smoke," but spend many, many hours looking for a contact. If the apathetic attitude of Melbourne 2 mx Amateurs to working country stations during winter is any indication, then these country fellows have a very lean and discouraging time.

Are you guilty of this practice? Just think what would happen to summer DX if the country fellows gave the game away completely.

Our VK4 scribe, who has adopted the nom-de-plume of Brutus, will be unable to carry on his good work because of pressure of business, BUT nobody seems willing to take over his job. My wife (a native of VK4) stoutly assures me that no true-blue Queenslander would let his State down. How about it you members of 6 mx DX paradise? 73, 3ARZ.

NEW SOUTH WALES

The warm weather has at last started to return to VK2 as will the activity. Judging by the pars from the other States, winter has much the same effect although there has been some good openings on 6 and 2 mx.

General: The V.h.f. Group meeting was held on the 7th Sept, where the lecture was on Antennae, methods of feed, and how to make them really work. This particularly interesting lecture was delivered by Alex Rech, of the M.W.S. and D.B.

Roger 2ZRH is interested in teeing up 2 mx skeds for the coming summer season. He will be running 150w. and using four seven-element yagis. Anyone interested could either contact Roger or myself.

50 Mc.: The only opening recorded since July occurred on 4th Sept., when VK4s were worked and some ZLs heard.

144 Mc. The August fox hunt was won by 2ZCF with 3PM and 2ZTM second and third. The fox, 2AWZ, was hidden at Bantry Bay in a new subdivision at the bottom of a zig-zag road. Band activity is only moderate generally.

1296 Mc. Dick 2ZCF and Bill 2ZAC are again experimenting on this band. Longest QSO was one way from Blaxland with Dick mobile to Bill's home QTH at Marwee, a distance of 30 miles. Bill was running 25w. input to a 2C39 tripler p.a. with 32 element phased array. Both using the converter out of the Jones Handbook. Dick's home tx uses a 6/40 driving a 2C39 tripler p.a. 73, 2ZLB.

VICTORIA

As there were no more Pacific high altitude bomb blasts (test) no more super DX was experienced on 15th July to prove that it was due either to the bomb or just Mother Nature. We have been experiencing our regular batches of winter inversion from Gippsland out to 150 miles approx. Usually these occur every seven days (7-day cycle) and re-occur weekly for three to four times (nights). Last month (Aug.) it was Thursday evenings, four in all. One Thursday evening it was so good to Melbourne on 2 mx I had a two-way QSO with Alan 3ZCJ mobile along Geelong Road into West Footscray, signals R4-5, S3 to S9 (yes, S9!).

Friday night, 31st Aug., was a good night. Also, the best I have ever seen Ch. 6 at Ballarat t.v. However I did not work any two mx DX.

It may be of interest that there are currently some satellites just outside the v.h.f. Ham bands: Explorer 7, 19.991 Mc.; Transit 4A, 150 and 54 Mc. Transit 4B, 150 and 54 Mc.; Traac 54 Mc., Cosmo II, 20.005 Mc.; Cosmos V, 20.084 Mc., Vostok III was on 20.008, 19.995, and 143.625 Mc., Vostok IV was on 19.990, 19.995, and 143.625 Mc. 73, 3ZCQ.

QUEENSLAND

50 Mc.: This band has been very dead as far as DX break-throughs, but VK5s were heard one Sunday. It also has been rather quiet as far as local activity goes, and a lot of local stations who have been making with big talk about what they are going to build, have started construction, thereby astounding the cynics. Ron 4ZBZ, who has been working in Toowoomba during recent weeks, has had no trouble in working from his mobile to mobile stations in Brisbane (Toowoomba is 80 miles west of Brisbane). Old timer of 6 mx who has been heard on again after a lengthy absence is Ross 4ZAT, who transmits from idyllic Bribie Island.

144 Mc.: A reasonable activity on this band, if you listen at the right time! Brian 4RX works 4ZWB at Dalby every Sunday evening at 1930 hrs. Don't know how he does it, but he does.

The August tx hunt was magnificent although the attendance wasn't. As the usual tx has slowly been getting sicker, Royce 4ZRH loaned his own tx and a petrol driven generator. A new antenna was used with the hidden tx, it is a turnstile made by Victor 4ZBT.

The V.h.f. Group meeting for the month discussed the design of a v.h.f. base station for six and two metres, capable of being run from emergency supplies and compact enough to be transported from point to point with the minimum of effort. 73, "Brutus."

SOUTH AUSTRALIA

50 Mc.: This band has been showing its usual activity recently. Newcomers include Glen 5ZEE, Clive 5PE, and a 6 mx man from way back, Pete 5FM. Pete lives in the Adelaide Hills and is putting a very strong signal down into the plains. Bob 5ZEQ is a new licensee who has been heard on 288 Mc., and hopes to be on 50 Mc. soon.

Newly married gentlemen John 5ZZ and Rod 5ZAA are back on the air from their new QTHs. (Rod, unhappily, lives about 100 yards from your conductor's QTH!) Graham 5ZAP is also set up at his new location.

The 50 Mc. band has been very kind to us in respect of DX over this winter season. July was an excellent month with all States and ZL being worked. August was also quite good, with the Interstate opening on the week-end of R.D. Contest proving a boon to contestants.

Geoff Farmer (son of 5GF) has now received his call sign 5ZGF. We hope to hear more of Geoff now that he is licensed.

144 Mc. With our main 2 mx stalwart, Mick 5ZDR still working up in the donga, this band has been very quiet and seems to be used mainly for cross-band contacts. Keith 5ZMK reports working Herb 3NN (180 miles) on odd evenings, but no regular skeds are kept.

288 Mc. This band has shown a renewal of activity recently. Graham 5ZAD now has stabilised gear on this band, running an 832A on 289.6 Mc. With John 5ZDZ, this makes at least two stabilised a.m. stations on 288 Mc. Another 288 Mc. signal of note, however, is that of George 5ZEY/T who has a t.v. signal on this band. George is using a Vidicon camera tube and the system is compatible with conventional 625 line receivers. The video p.a. is a QQE06/40 and an omnidirectional aerial is used. Good signals have been received 10 miles away. As yet there is no sound transmission, but this is in the making.

General News: Don't forget the Mt. Gambier V.h.f. Group Field Day over the holiday week-end in early October (see Aug. "A.R." for dope).

Doug 5KK has a new aerial system, a 13 el. 24 ft. yagi on 144 and a 9 el. 30 ft. yagi on 50—all this 70 ft. high. Barry 5BQ is understood to be negotiating for a tower and we hope that this will let us hear even more of this keen v.h.f. operator. Keith 5ZMK and Brian 5ZBR are practising code and hope to sit soon for the exam. Garry 5ZK is building a new mobile rx and will continue his mobile activity when this is completed. 73, 5ZCR.

TASMANIA

144 Mc.: The main news for this band concerns an attempted North-South contact between David 7ZAI and Danny 7ZDM at Kelso, and Bob 7ZAL who was portable on Mt. Wellington. Very poor weather conditions forced Bob to return early in the day, but further attempts will be made. Bob is working on new gear for portable work including a petrol motor driven generator to keep his batteries topped up. He has spurred your scribe into frantic activity finishing beams, rx's, etc., so that I can assist from my half-way location.

David 7ZAI has been beaming south from Kelso each night at 1930 hrs. with a yagi and towards VK3 at 2030 hrs. using a 35 ft. dish aimed for tropospheric forward scatter into the Dandenongs, and I understand that he has heard some Melbourne stations.

Wilf 7ZAQ and Rog 7ZAO have their new 120w. rig on the air and they are putting a better than ever signal into my QTH. We could do with more of these high power stations and I understand that, besides my own a 150w. job, running well below ratings, is on the drawing board.

A 2 mx link is being organised for the forthcoming Jamboree-on-the-Air. This should help make the Jamboree a success. 73, Nevil Fisher.

PAPUA

August was a most disappointing month in VK9. No signals were heard on 50 Mc. from any source. All stations are now back on 50 Mc. after the false start on 52 Mc., but if you can't hear any DX it is not possible to work any. TE scatter signals on 49 Mc. were heard at good strength on several occasions with the beam heading N.N.E.

A visitor to the Territory during the month was John VK1ZJB, who called into Moresby to say hello. He had hoped to bring a small v.h.f. tx with him but decided, unfortunately, that it weighed too much to bring up on the plane from south. 9AU will be visiting the Territory of New Guinea in a few weeks but also lacks a rig of suitable size to pack in the suitcase.

A word of warning! 9ZBV is now equipped with 100w. on 50 Mc. and is delightedly anticipating blowing out speaker cones of unwary VK operators during the coming DX season. 73, 9AU.

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Sub Editor: ALAN SHAWSMITH, VK4SS, (Phone 4-6526—7 a.m.-4 p.m.)
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ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Let me introduce the column with an observation or two, on conditions. Each month the mail to hand shows rather a wide divergence of opinion as to the state of the bands. This is to be expected, somewhat as we cannot always listen at the optimum times. This often leads to a rather poor or under-par assessment of the state of things. There are, too, those who always cry poor, but still send in a pretty good list of DX worked.

Geographical position too, of course, plays a very important part. Those situated in the lower latitudes, say from VK2 around to VK5, have a definite advantage in working signals on that well-worn path, i.e. the L.P. to Europe, which takes in South America, on the way. The East Coast, from VK2 north, might have a DX advantage to the N.E. quadrant, and perhaps also to Europe on the S.P., but it is necessary to listen at the right times to work these circuits to advantage. Then there are those who, unavoidably have poor location, with high noise levels, etc., also there are antennae that do not receive as well as they might.

However it would be safe to say that the bands overall are poorish at the best of times; they are nowhere near as good as in years past.

NOTES AND NEWS

VR3L/VR1 is currently operating from Canton Is., but for how long is not known.

Alan VR4CV, late of Honiara B.S.I. should be in Sydney by the time this reaches you. Where to next, Alan?

Frank VK2QL reports the following info of the three most talked about vagabonding voyagers. Danny in the good ship Yasme is bound for Manikiki. His e.t.a. is approx. 30th Sept.

Gus W4BPD when last heard of, was trying to commission a boat for the Rodreguez Is. venture. But nothing further is known at the time of writing this.

Dick W0MLY had a mishap to his gear and is now back at his home QTH in the States. The log books were not lost however.

Frank further says that if you still want a QSL for those M1 QSOs, try Ack W4ECI.

Activity is expected from PJ5 in a few days. This is Sint Martin—bands 14 and 7 Mc. c.w.

The following is by courtesy of Bev Cavendar, Editor of "Florida DX'er".

CR8AB will be returning to Timor in December.

EA9AZ is planning an expedition to Rio de Oro.

All s.s.b. contacts with W0MLY, Africa, on 14061 Kc. will be accepted for D.X.C.C. award credit up until 0001 G.M.T., Friday, 13/7/62.

Herb VR8AA has a HT-37 and HT-41 for his s.s.b. operations. He works 80 through 10. His stateside QSL Manager is W8ADN. VR8AA will go to ZM7 in a few weeks for a vacation but the Hamming side of it is still tentative. QTH: Box 36, Nukualofa, Tonga Is.

Kermadecs. ZL4JF will go to work in the Kermadecs with an S-line in two months.

W0FWA is now in the Far East according to XW8AS. Activity is expected on 14270 Kc. s.s.b. as W0FWA/3W8.

St. Brandon Is., VQ4APB, will be active from here during August. Operation is 14 Mc c.w. and from 1200 to 1800 hrs. G.M.T. daily.

Carl Kunz, KC6UZ, was killed in a plane crash. Efforts are being made to locate his logs.

ZC5DO is a call due to show up in a month's time. Nothing more available on this at the moment. His frequency might be 14280 Kv. xtal controlled.

Manihiki—ZK1BS will operate from this island again during August on 7020 and 7060 Kc.

TA1AH is active week ends on 14280 s.s.b. There is a rumour of coming Indonesian activity using the prefix 8B4.

3A2BZ all bands c.w./s.m./s.s.b., 14305 Kc. mainly. QSL via W2CTN.

9U5 now counts as two separate countries. (It's like splitting the atom now—Al.) Rwanda and Burundi. There is much activity from this area now on 21 Mc.

Rockall Islands—GM3ZKZ is planning an expedition to this forbidding spot. Steep cliffs all the way round; landing must be by helicopter. Lots of unexploded shell lying around. The island was used for target practice. (I know life is a challenge, but is this going too far? Al.)

Trinadade Island DX-pedition is set for Sept. Call will be PY0NG.

S. Sandwich Is., VP8XZ, is on 14312 Kc. c.w. Yes. c.w.!

K2QGC/KG6 may go to Rota for a spell soon. More info later.

4W1AA is active around 14070 Kc. Many think he is a foney. He gives his name as Krim, Box 7, Fana, Central Yemen. He is a slow c.w. op.

SU1IM, whose name is Abrihim, says QSL to 7 Roda St., Cairo, Egypt.

Guam has now be added to the A.R.R.L. D.X.C.C. list. For those who have previously submitted a KG6 card, you will receive credit for either Guam or the Mariannas, depending on where the station is located. If you have Guam already credited then you can submit a QSL for the Mariannas after Nov. 1 for a new one. If you have a QSL from the Mariannas already credited, then you may submit a Guam card. Any QSL dated after Nov. 15, 1945, is acceptable. It is often difficult to know if you have wkd. Guam or Mariannas. However that's your worry. Submit what you think may be right and let the powers decide. The following definitely count for the Mariannas. KG6RA, KG6RB, KG6RC. KG6R is Rota. KG6T is Tinian. KG6S is Saipan.

The latest on TA4RZ is that he has permission to operate but has no license. (Sounds a bit like Paddy's reasoning to me.—Al.) His name is Mustafa. He too has the expedition bug it seems as he says that he will soon go to YK, YI and JY land. How soon is not known.

ZS6PC has a new QSL Manager—WA8AFZ.

Did you hear the result of the referendum poll on Malaysia? The vote was a decided yes for the integrating of Singapore, Sarawak, Brunei North Borneo and Malaya. It is hoped to bring this about in a year. The present prefixes will be deleted when the Federation comes into being. (Whew! How do we keep up with it all?—Al.)

The only note I have on local achievements is that Frank VK2QL has No. 2 W.A.C. QRP Club.

ACTIVITIES

Frank VK2QL has been busy around the house, but managed time to QSO these on 3.5 Mc. c.w.: VR2DK, VR5AA, ZK1BV, ZK1BW. He heard XE1OK. He recd. a good batch of QSLs this month. They were: M1/1IIN, FL8, 8O1AA, VQ1A, VQ8A, 2A2BW, IS1FIN, 5A3-TTQ, W1MV/KP6, HK6AB, 5H3HD, VP8MJ, VP2MC.

Hal VK4DO reports working these: 14 Mc. c.w. KG6, KH6, W, K, JA, VE, DL7GF, JZ-0ML, KX6AZ, OK3KES, SP1AK, VR2DK, UA-0AJ, UA0BN, UA3KAF, UA4HW, UA9VB, YU-2AKL. 14 Mc. c.w. hrd. AP5CP, AP8SS, DJ-5IM, LZ1KBL, OA4CG, SP9TA, UA0S, UA1DZ, UA1WU, UA4KAB, UA8LP, UA9KVD, UA8US, UI8AG, UL7KCF, VR5AR, YO9IA, YU1DY, ZK1BY, 9M2UF. 14 Mc. phone wkd.: KH6, W, K, VR3L/VR1. 14 Mc. phone hrd.: VR4CV, VR5AI.

Eric BERS-195 sends in these. 80 mx hrd. SM3OIP/MM. 40 mx hrd.: BY1PK (2030z), DJ2RE, G3NBP, HA8UE, HK7XI, HP1IE (1130z), KC6BD, KG6GX, KH6EHI, KL7AUG, KR6NG, KX6AZ, LZ1KCO, OA4FM (1200z), OK3AL, PA0POL, VK8UX, VR4CV, SM2BJI, SP5ALI/9, UC2KAR, UA3KZO, UA9US, UB5OH, YO4KAK, XW8AL, YU1DW (1600z), UC2BW, VR5AR (1130z), 9M2FZ, SM3BVP/MM. QSLs rcd.: VU2US/AC5, HK7UL, HL9KB, KB6CA, MP-4BDN, OK3KJF (3.5 Mc.), UH8BO, UI8KAD, UL7FA, UO5AA, VK2VN (1.8 Mc.), VP3MC, VS4RM, ZC4IP.

Ken VK3TL, from a new QTH, worked these, 14 Mc. c.w.: G2CKK, DJ5UB, DJ8CC (YL), DL1BO, DL1IA, DL1FF, DL1IW, DL3LB, HA-5FO, OK2OQ, OK3DG, OK3SK, ON4WL. 7 Mc. c.w.: FK8AH. 14 Mc. phone: VR3L/VR1 (Br. Phoenix), VR5AA. QSLs rcd.: VS6EP, UA9OC, SM3BBA, UC2KAG, DJ1BJ, KM6CE, MP4BBW, DL1QT, UO5AA, UO5PK, G5VM, G3, GD6UW, GM3LYI, GM3ITN, G4OI, HB1ZT/FL (Leichenstein), W1MV/KP6, UA1KED (F.J.L.), KS-4BF (Serrana Bank), CE3RC, G2GM, G2VV, G6CJ, UF6AU, UA1CE, UA3NB, PA0FM, VR-2AB, DJ7CZ, XZ2BB.

Peter L8021 reports fair conditions on bands 80 through 15. DX hrd.: 20 a.m.: XE1HK, VK-0JM, VK0BB, ZE7JR, II3M, G3GDC, GI2CM. 15 mx c.w.: VS1KP, KR8NAA. 15 mx a.m., HS7IW, HB9MX, GI2PSP, VK9DJ, ZE7JR, VQ-8AM, 5R8AA, 9M2FS. 40 mx a.m. XW8AL (1530 G.M.T.). 40 mx s.s.b. VP8WR, KL7BGZ, KH6RRI, W4UAH/KL7, KL7BWW, KM6BI (0907), KB8CL (0827), JA1GDR, ZK1AA. 40 mx c.w.: UA9KAO, KL7AUG, JA6BPN, OZ-5EH, VP8AK, UB5LA, JA3BDO, UA4KKC, OK-3AL, VR1D, W4VCA/KH6, JA6AWX, DU8TY, UA0LL, JA2CMO, VS1FJ, KG6GX, JA1ALU, SM5CBC 9Q5, UC2OM, YO8AW, YU5AAG, WN4FQT, WN4EBE, YO9CN, UA4IB, SM2BJI, SM7ADO, UA6FT, SP7AAK, UA4SO, LZ1KBL, UA6XED. 80 mx s.s.b.: VR5AR.

Arie Bles gives a thumb nail on conditions. He says that the L.P. to Europe still holds but less consistently than a month previous. The short path comes in about 1200z for a couple of hours. This is for 14 Mc. On 7 Mc. a few s.s.b. Europeans get through about 0600z for a while. VK2AIR managed a QSO at this time on a QRP transceiver. Arie also says that the 21 Mc. band is now N.G. for Europe.

Darrell L8041 breaks the ice with a few good ones hrd. on 14 Mc. s.s.b.: KX6DC, KL-7SBD, W4LCY/KM6, KX6AA, KR8DF, JZ0PN, ZE7JR, HL9KO, KR6DR, KJ6CB, VS1AU and many others. On 160 mx he reports that ZL3OK has the best sig.

ADDRESSES

VU2US/AC5—Eric BERS-195 rcd. this QSL directly from VU2BK. If you are wanting one also, try your luck.
9K3BC—Box 908, Kuwait.
VP2LO—QSL via W6NJU.
LA7JF—Hans Aarhus, Box 46, Bryn, Norway.
LX1DW—Jim Schmit, 72 Rue Fr. Bock, Rollingergrund, Luxemborg.
YA1IO—QSL via DL6YI.
KP4AQQ—Oswaldo Garcia, 593 Hostos-Baldrick, Hato Rey, Puerto Rico.
HC2IU—Henry, Box 5200, Guayaquil, Ecuador.
KP4VB—QSL via W7ZAS.
9U5PC—Box 18, Ruhengeri, Rwanda.
9U5DS—Box 14, Usumbura, Burundi.
9U5BB—Box 14, Usumbura, Burundi.
9U5DM—Box 1, Usumbura, Burundi.
9U5BH—Box 81, Astrida, Rwanda.
9U5XX—Box 490, Usumbura, Burundi.
9U5CB—Box 1122, Usumbura, Burundi.
VR3L/VR1—QSL via WA6MAZ.
TA4RZ—Mustafa, QSL via K4WIS.
HK6AT—Victor, on San Andreas Is. QSL via W9WHM.
VP2KJ—Nevis Is. QSL via W4SSU.
VP8GQ—QSL via G3PAG.
HE8AF—Fritz. QSL via K2FLS.
HI8XAG—Bert, QSL via K4BMS.
LX3QF—QSL via ON4QX.
MP4QBB—Qatar. QSL via K4TJL.
VS6AE—Hong Kong. QSL via W6DIX.
VQ1FU—P.O. Box 84, Zanzibar.

SUMMARY

Let me close this with a very short word on the DX Net Race, and its relation to Amateurism.

It is not unusual, now, for the top bracket DX men to send a four dollar or so telegram to a rare prefix requesting a QSO on sked. Is this buying a QSO?

The vagabonding triplets, Danny, Dick and Gus, are doing more for the top DX boys and commercialism than for anyone else. They also make the working of a new country like shooting ducks at rest—no sport!

Award Hunting, which is a more social and admirable pastime, than prefix-hunting, unfortunately, has its pitfalls, too. I am informed from American sources that the practice of some clubs or persons offering certificates that require very little ability to obtain, do so for the real reason of making a fast buck.

Is this Amateurism? You decide. It is a trend that, to say the least, will do the Ham game more harm than good.

73, Al, VK4SS.

☆

WORLD AMATEUR CALL SIGNS

The Federal Treasurer of the W.I.A. has for sale as usual at £1 post paid, recent back numbers of "Call Book Magazine". Copies available at the moment list American Amateurs only, but the "foreign" edition, listing all Amateurs in the world except Americans, may be available by the time "A.R." goes to press. Apply to the Federal Treasurer, W.I.A., Bob Boase, VK3NI, 50 Cardigan St., Carlton, Vic.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

PREDICTION CHARTS

Editor "A.R.," Dear Sir,

You announced in the September issue that publication of Ionospheric Prediction Charts would be discontinued, due apparently to lack of interest.

This is not surprising. The use of the excellent data supplied by the Government Ionospheric Prediction Service is very time consuming. While it is a relatively easy matter to plot out a graph of the predicted optimum frequencies over a day between two fixed stations (although, we believe, the I.P.S. use a computer, and we found it took an hour or so to work out the predictions between each capital city and VK2AHM for the R.D. Contest), a difference in location of a few hundred miles or so at either end of the path makes a significant difference. Therefore, for a country the size of Australia, even if we had a chart for each capital city, these would not be much help to country Hams. Further, as the path depends on conditions at both ends, the number of charts required becomes impracticable.

The use in predictions of such terms as "Eastern Australia" or "Western U.S.A.," coupled with the day-to-day variations in the Ionosphere, and difference in station surroundings and aerial systems has made the use of any charts published so far almost valueless for Hams.

However, we feel that somehow we Hams are missing a lot by not using this service. Firstly, it must help us to make more interesting DX contacts—it has been possible on some occasions to say that a certain band should be unexpectedly wide open to a certain place, to turn the beam that way, and to make contacts on an otherwise dead band (to everyone's surprise). Secondly, and much more importantly, the use of predictions, or even the continuous comparison of them with actual conditions, must finally give us all a better understanding of the Ionosphere and its continual variations. It is a major factor in communications that we will always have with us, and we have no control over it! bombe apparently notwithstanding), so the more we know about it, the better. For our own purposes, we need only consider the published charts of Maximum Usable Frequency; any considerations of the physics involved may come later.

It is difficult to know the best way to present a chart, so that it is quickly readable and easily applied. And, as we mentioned earlier, any one chart that includes the effects at both ends of any circuit makes its use very limited.

We have prepared our own charts in the form of a circular graph. The hours of the day, commencing at 0000 G.M.T. are marked out along the radii, and the direction of the radii correspond to the direction of the signals. Maximum Usable Frequency contours are then drawn in from the U type Predictions furnished by the I.P.S. These charts show only when bands are open in certain directions at our end. We had hoped to evaluate them after several months, but owing to an enforced period of inactivity this is not possible.

If any DX men are interested enough and are prepared to spend enough time on the air with reasonable gear to try them out we will undertake to supply similar charts, or better still, supply instruction for their manufacture from U type Predictions to those who can get their hands on the Predictions.

—J. McL. Vale, VQ9NQ.
—L. H. Vale, VK9NO.

R.D. CONTEST

Editor A.R.," Dear Sir,

I would like to suggest a change in the rules of our Remembrance Day Contest to allow Limited license operators to participate. These changes are as follows —

"Z" call holders to be allowed to contact other "Z" calls in the same State—only 1 contact per band, to score 1 point per contact—if a "Z" licensee can work Interstate the usual bonus points can be claimed. All v.h.f. bands allotted to "Z" call holders to be allowed, but no cross band, i.e. 144 to 50 Mc., etc., allowed.

Limited license holders cannot work unlimited licensees and vice versa in the same State, but can contact for points any Interstate station using v.h.f. allocated to the "Z" class operator.

Since the R.D. Contest is open to any Amateur whether a member of W.I.A. or not, I consider that the v.h.f. man who probably has graduated from associate member to full member by virtue of passing and receiving his call should be allowed to enter his station and submit a log as well as non members of W.I.A. and I am very much in favour of the Institute granting a privilege such as this.

Perhaps the increase of valid logs will help some States and work against others, but I am sure the alteration would be for the good of our hobby and the rules would not have to be changed very much to cope with my idea.

Remember a log means an operator—an operator means another Amateur taking part, therefore, the more operators the greater the success that we desire the Remembrance Day to be.

—L. S. Cotton, VK5LG, M.W.I.A., W.A.C.

MODULATION

Editor "A.R.," Dear Sir,

I was rather interested to see that the article on Zero Bias Class B operation of 807 style tubes was again featured in "A.R." for Sept. '62.

This particular mode of operation goes just about as close as one can hope to go in getting "something for nothing."

There are, of course, several snags which are rarely discussed in the articles. My main objection to the continuous reprinting of the articles concerned lies in the description of the "modernised" speech amplifier stages. The use of 0.1 μF. coupling capacitors and 50 μF. cathode by-passes may be desirable in an amplifier designed to reproduce the sodden thumpings of a set of bongo drums, however, for use in a modern Amateur phone station the circuit described would be almost fatal. Investigation of the reference reveals that the speech amplifier gain is, in fact, higher at 30 c.p.s. than at 1,000 c.p.s.

A beginner attempting to use this circuit as the basis of his modulator would almost certainly come to grief with problems of hum pick-up and an unnecessarily broad signal.

Admittedly some reference is made briefly to the use of more suitable coupling and by-passing components, but no attempt was made to indicate the values which should be used.

When these factors are discussed with others over the air it becomes pretty clear that the principles are not generally known. If they are vaguely known, then certainly they are not understood.

At a later date, if sufficient interest is evident, I will discuss these factors to some extent. In the meantime any operator building a modulator based on this design should use the following components as a starting point:—

Coupling capacitors, 0.001 μF. (plastic), grid and plate resistors, 100K, cathode by-passes, 0.001 μF. (ceramic), shunting capacitors from each plate to ground (not shown in the circuits), 0.001 μF.

It should be noted that the grid stopper R1 (Fig. 1, page 7, Sept. "A.R.") is connected to the wrong side of the grid resistor. The correct position is between the microphone load resistor and the grid of the first pre-amp. Capacitor C1 remains connected from grid to ground.

The low pass filter so formed keeps r.f. out of the speech amplifier low level circuits.

Time spent incorporating these features into your modulator will be rewarded by the production of good clean audio which is a delight to copy under normal conditions, easier to copy under adverse conditions and which at the same time enables others to work on adjacent channels without difficulty, provid.ng the other factors are satisfied. But that's a different story!

—M. Riley, VK2ARZ.

[Readers will no doubt look forward to the forthcoming technical article as promised by Mr Riley. The coupling and by pass cathode capacitors will affect the low frequency response. A broad signal is caused by the higher frequencies. Editor.]

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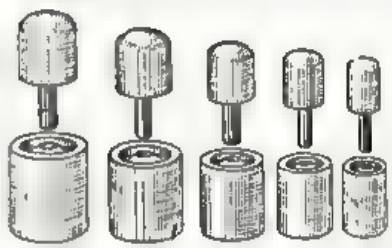

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FEDERAL QSL BUREAU

The address of the QSL Bureau for KR6 is P.O. Box 37, Kadena, Okinawa

Cards from Bill Hempel. VK3AHO, for his operation at YJ1RH and FW8BH are in the course of distribution.

All and sundry are again reminded of the changed QTH of the W.I.A. QSL Bureau to P.O. Box 41, Box Hill E.11, Vic., Aust. New address labels are in the course of being printed and will be ready for distribution in the near future.

A small number of QSLs for Gus W4BPD's operation at VQ8AA have been received from Ack W4ECI.

John Garrett, W5LAK and 5A5TA who is currently signing MP4QBB from Qatar, expects to be at the latter location until 30th Sept. John is endeavouring to fit in short periods of operation from Muscat and Trucial Oman after leaving Qatar. All QSLs go via K4TJL.

—Ray Jones, VK3RJ, Manager

— . . . —

NEW SOUTH WALES

HUNTER BRANCH

There was a departure from the usual technical lecture at the August meeting when ten members, five associates and five visitors were treated to a most enjoyable film night presented by Phil 2ANG. Phil is to be complimented on his skill as a movie maker, as is Kev 2ZKW, for it was from the studios of these two gentlemen that the majority of the films came. These were in colour and covered travel and festival topics. It is impossible to give our two members credit for the latter part of the programme, however, for these concerned some of the foolhardy exploits of the now fallen movie idols and, after watching the antics displayed, it is a wonder that they did not fall before. I am quite sure I speak for all those present when I say a jolly good night was had by all.

Local news this month is abbreviated to offset the decimation practiced on these notes in the past few months. It is with regret that I have to report the illness of Lionel 2CS who was admitted to hospital early in the month. The last report received indicated that Lionel was making a rapid recovery and it is hoped that by the time these notes appear, he will be returned to his customary robust health.

Many of the local boys have had the 'flu, but all now seem to be recovered and some, at least are back on the air. Gordon 2ZSG has taken up temporary residence at the lakeside abode of Bill 2XT and is enjoying the smoke laden air of Coal Point between the other activities of Command re-building and fishing for the elusive tailer. By the time Gordon has completed the Sutherland conversion on a Command set its interior appearance bears no resemblance to the original. However its performance is greatly improved. Bill 2ZL treated the Hon. Sec. and his family to a trip through the wilds of Phenyle Bay (out on the aerial farm) by locomotive during the holiday adding some more to the smoke hazard. Bill has at last solved his noise problem. He has found that loco smoke from the Phenyle Bay Railway is fouling the insulators on the high voltage lines and causing arc over. Remedy, import anthracite from South Wales. Intending suppliers please note.

Jim 2AHT is still working the DX and to even greater effect now that the new rx has arrived. You may recall that Jim became the proud owner of a brand new Collins recently. Well, in the tradition of having the latest of the best, he has just exchanged it for the improved model. Oh lucky, Jim!

Harry 2AFA is at present in the electronic doldrums but he has proved that 160 metre gear does not cause t.v.i. so there is hope that one day soon he may be on this band. That is, of course, if he does not appear on 2 mx first. There is some very startling news about 2 mx and a heavily disguised lakeside resident who has noise trouble even though he has an antenna farm and smoky insulators, but I am not permitted to divulge his name or location at the present. It is certain that he will be on 144 very soon, maybe on his interior t.v. antenna.

The only local caller to be dead zero beat with 2AWX on Mondays continues to be Les 2RJ. Les puts this down to 'normal precautions". It is hoped that others in the group take careful note and do the same as my rx is very sharp.

In my continued campaign against duck-talkers, here is some more ammunition. Silly sideband is not used by astronauts from the Soviet Union when working base and its use by British aircraft is to be curtailed, according to latest reports. Doppler shift apparently does some very strange things to narrow band rx's even to putting the signal into another channel! Now we know why Bill 2XT doesn't use s.s.b. on his fast journeys to the lake.

Apparently there are some readers of this column other than our own small circle of friends. Tony tells me that he received some very interesting information on the 6AR8 valve mentioned last month, even before the "A.R." arrived. Many thanks to Chris 2AXU.

It is a pity that the Editor's pencil deleted the historical note about Ron 2ASJ in last month's issue, but this will serve to let you know that the fame of your famous relation did not go unnoticed Ron. I wonder how he would have appreciated 2 mx gear.

Mac 2ZMO is now in the process of modifying some more 522 sets for t.v.i. free use on 2. As Mac is the local expert on this piece of equipment, it would pay you to visit his QTH and see what really can be done with the 522. Raymond Terrace is quite handy and Mac would appreciate a visit from any of the boys. Did you know Mac uses NBN mast as a slave antenna? Ask him for details.

As Bill 2XT is to be departing in an oriental direction very shortly, it is suggested that those members contemplating visiting his home on the customary fourth Wednesday, check with Bill at the next meeting which will be held at the Newcastle University College at 8 p.m. on Friday, 12th October, 1962. If you are an irregular attender why not make a resolve to be present on that night. You are assured of an interesting time and here is your chance to meet personally the voice from that last local contact. 73, 2AKX.

BLUE MOUNTAINS SECTION

The July meeting was held at the usual venue and after the usual formalities, Wal 2MZ gave a description of his latest 2 mx mobile/portable transceiver and according to his figures the rx compares very favourably with the home rx. The whole transceiver was built for low power drain with efficiency and for the use with the bush fire net. The general layout and circuit are available from Wal as well as his able assistance for those building same.

The August meeting was well attended also and heard Arie Bless give a lecture on s.s.b, and was told in a manner that anyone could understand. His description was around a filter rig and a general outline and circuit was described, portion of which will appear in "A.R." Going by the questions and interest, the Blue Mountains Section will end up all "quackers". Arie has offered his assistance to those interested and can be contacted by phone or through Alec 2EX. Arie's KWM2 provided much interest.

With the warmer weather coming, the Section should become more active. Don 2ART is moving back into his shack and should be on 2 mx soon. Sid 2AVK has been heard bushing the blokes' ears as usual. Alec 2EX is busy with DX and Keith 2AVK and Dave 2NK have been having regular contacts. I believe Bill 2HZ was heard one night quacking away on sideband per Arie. A newcomer to the mountains is Trevor 2TM, from Woy Woy, and is residing at Hazelbrook. On completion of his rx he will be active on 80, etc.

SILENT KEY

It is with deep regret that we record the passing of:—

VK5TZ—A. A. (Bert) Sinfield.
VK5UZ—H. E. E. (Hec.) Brock.

Bob 2CT was having a moan the other night about a "bung" from the Advisory Committee regarding excessive hum on his carrier. By all reports the Committee have got the calls mixed up. The funny part about it is that Bob was assisting someone else with hum problems. Noel is going up to Cairns for his holidays at the end of November and hopes to have a call to take with him. Also Noel and yours truly are mobiling to VK3 over eight hour week-end to see some of the boys down under. The R.D. Contest seemed more orderly this year and by all accounts was well supported by the Section. Jack 2ADF is busy preparing for his annual holidays and will have some gear to fit the new heap by the end of October. Al 2ZFB is back on 2 mx with audio sensitive enough to hear the front gate shut.

The club xtals were all handed out at the August meeting which should increase the club activity on the 2 mx net frequency.

Coming events are our Annual Field Day at Lawson (the date to be finalised) and the Scout Jamboree-on-the-Air. 73, 2ADA.

BOORAGUL HIGH SCHOOL RADIO CLUB

The results we obtained on open day during Education Week can only be described as disappointing. Despite the fact that we were on all day we only made two and a half contacts, and those on 40 metres. The half contact was with 3AYL and it is hoped that some of the girls from that club will read these notes and try again.

With conditions at lunch times at an all time low just now, we are curtailing our activities until 80 improves when it is hoped there will be a good chance of hearing 2ATZ on that band.

On the constructional front there is continued activity and the latest scheme is concerned with "kit sets" for club projects. Members are now able to purchase as a kit all the parts for any of the approved projects in the syllabus. As this is done by co-operative buying, members are receiving a substantial benefit and are now able to afford more parts per term. Many thanks to 2LM for the generous gift of books for the library. 73, 2ATZ.

— . —

VICTORIA

GENERAL MEETING

Due to school holidays the general meeting was held a week early. Approximately 30 members were present to hear Jack 3VZ describe "The Monster". For the benefit of the uninitiated, this monster is a device for receiving s.s.b. The fact that it will also receive a.m. and c.w. is purely co-incidental. It is built round a couple of Command receivers and a bank of crystal locked converters giving, in all, quadruple conversion. At present it provides bandswitching from 80 mx through to 2 mx. 160 mx will be incorporated in the near future. We expect Jack will do an article for "A.R." on this equipment, so keep a watch. It is really something to see.

Business was kept to an absolute minimum, leaving plenty of time for those present to wander round and ragchew. This idea appears to meet the wishes of members. When I left the party was still in full swing, so possibly continued to a very late hour.

Now out with your diaries and note the following events:

14th October—Transmitter Hunt. Note there will only be a fixed tx for this date.

3rd and 4th November.—State Convention at Ballarat. Wives, families, etc., welcome.

30th November.—Annual Dinner at Bamboo Room, Chevron Hotel.

Full details will be on 3WI broadcasts.

COUNCIL MEETING

Council meeting for September had fewer matters to consider than for many months, in fact the meeting closed at 10.30. The major item was the W.I.C.E.N. exercise scheduled for 22nd and 23rd September. The overall plan

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looks good and a few minor details only have to be settled. It is hoped a full report will be available next month.

The financial position was reviewed, and thanks to the influx of new members, the position is pretty good. Council feels confident that thoughts can be directed towards improving the services to members. The library is to come in for attention, and it is hoped to replace the magazines from which various people have "borrowed" pages.

We have a few more complaints to air. These are against those who use the sink as a workbench and those who leave the tx room in such a mess. Such actions are most disheartening to those doing renovations to the premises. Council has no desire to veto the use of the rooms by individuals or groups, but must consider the fact that the property belongs to members as a whole and if found necessary, will have to take steps to protect it.

Steps are being taken to include c.w. facilities in 3WI transmissions. Peter Dettman has offered to construct an electronic keyer. Thanks Peter. And that's about it.

Last month 5PS had some nice things to say about the Like-New Mixer. When I first read the original article I didn't believe it, but decided to give it a go. The results were staggering. I used it for a couple of months before sending the magazine on to the Editor. Has anybody tried it in v.h.f. converters? If so, I'd like to know the results. Also, will 5PS send us details of how he built it into his crystal set—or did somebody do it for him?

NORTH EASTERN ZONE

Honest apologies for not having submitted copy for the past two months, have been off air since mid-June and only recently managed to get my rx performing. Nobody has sent me any letters containing potential copy for these notes and each should hold his head in shame for not pulling his weight towards wresting the Kinnear Trophy from its present holders.

3AAQ is building a very nice tx with mod. and all power supplies in the same case. His s.h.t employs 8 x OA2145 in bridge configuration, by the way. The elimination of 866s and associated fil. transformer certainly reduces the size. Neville has decided to stay at 50 watts with one 807, but has left adequate space for a second 807. He is scheduled to go to a hill top to become a big shot t.v. tx attendant which also means he will leave this zone.

The other week 3IG panted in to the r.f. factory with about 10 seconds to go to the start of night shift. Between gasps we gleaned that he had just worked a W0 on 80 mx phone. Bruce reports that he has spray-painted all of his units in hammer-tone using pressure pack cannister and being happy with the result. He confidentally recommends the method to all. He is one of those few prepared to assist with W.I.C.E.N. and has been told of the possibility of having to stoke up at 0400 hrs. during the simulated emergency run. I offered to be message writer, but he will do nicely with another private secretary.

3ACK completed his electronic organ a couple of weeks ago and is quite happy. 3ACD has been putting his four el. triband beam to good use of late, working Gs, EAs, and Is on 20 mx. The commercial rotator gears did not last very long in his case. This most likely due to wind whipping beam about and the fact that the brake was inadequate for the task. 3AYD had several reports of warbyness in his c.w. notes. Investigation disclosed heater cathode leakage in the v.f.o. After installing a regulator tube in the h.t., the pressure was reduced and the leak was stopped. Now he gets T9 reports. He worked a YV on 20 mx phone last month; that makes 16 countries in 12 months with 33 per cent. confirmation. Has plans to construct a 10 watt portable for W.I.C.E.N.

3AHO has returned from his DX-pedition but has two gripes. The Yanks and their nuclear blasts, and about the airline which mislaid a bagful of exotic seashells. Eight of the Shepparton stations have consented to have Scouts for Jamboree-on-the-Air in October. The zone hook-ups of late have been brief and generally orderly. Last hook-up, mention was made re sacking this correspondent for inertia. I trust I have redeemed myself. 73, 3ASY.

MIDLAND ZONE

The activities of zone members for the month of August have been varied and it's pleasing to note that the increase in activity and members is steadily increasing. Early in the month conditions were variable on all bands and in Castlemaine particularly we have been plagued with power line QRM. So severe in fact, operating has been impossible on all bands at times.

The zone general meeting was held at the QTH of Peter 3APJ, who acted as host for the zone. Those in attendance were 3ZIK, 3SV, 3ND, 3AIM, 3KU, 3APJ, 3AHA, 3FO, 3ZLJ, Ian Williams, Roger Butler, Bill Taylor, Jnr., and apologies were received from John Jobson, 3ACN, 3PY, 3ZAW, 3KO.

Col 3FO was the star of the evening, having provided the Ham fraternity with a prospective operator with the new harmonic. Congrats. to Col and XYL.

Zone hook-ups are on the improve, thanks to the efforts of Jim 3SV. As for myself, I have not yet appeared on 80, but don't give up hope. I will however be leaving for VK4 land on 31st, returning on 1st October, and by that time be fully equipped on 80 mx. We have moved our zone hook-ups (80 mx) to 8 p.m. each Monday. Last hook-up on 27/8/62 netted 3SV, 3FO, 3WI (3APJ), 3AHA, 3OR, 3ZK, 3BU (2IK). Bendigo members are still conspicuous by their absence. I hope to have some interesting news and views on my return. 73, 3ND.

EASTERN ZONE

We have several s.w.l's. and up-and-coming Hams in the zone at the moment. Bob Stewart, of Moe, spends most evenings monitoring the 144 Mc. band, and he has received all the zone 2 mx stations and heard Melbourne sigs.

Jack 3AJK, of Moe, has now established himself back on the air, firstly 80 mx, and heard carrying out checks with David 3DY. Jack then built a 20 mx cubical quad and his first overseas QSO was with VR4CB. Since then he has been quite active on 20 mx, working a few countries. However, the band is at a low ebb at the moment.

Quite a few of the Zone members participated in the R.D. Contest. Les Dale is well on his way home now, from U.S.A. to Morwell, after a teacher exchange mission. Graham 3QZ is also on his way back home from his tour to England and Europe. Bill 3AMH had an enjoyable holiday in VK4, working portable/mobile on his way up and back, using the 20, 40 and 80 mx bands.

David 3DY now has his s.s.b. equipment working on full power, after a lot of teething troubles. If zone members have any interesting news, please do not hesitate in dropping me a line before the end of the month, so I can let the rest of the zone know about it. 73, 3ZCG.

WESTERN ZONE

Main details of our Convention, which is to be held in Murtoa on Sunday, 28th October, are as follows: Meet at the Lake about midday. There are nice surroundings here for a picnic lunch for those interested, or a hotel lunch can be arranged by letting either Vic 3AEQ or me know. Our Annual Meeting is to follow lunch. Afternoon will be taken up with transmitter hunt, scramble and ragchews.

The evening meal will have the same arrangements as midday meal. We will then have some films and Chas 3IB will show slides taken during his stay in the Gilbert Islands.

Weather permitting, at least two members expect to attend per light aircraft. This should be very interesting as mobile gear will be installed in them.

This will be a good get-together, so will be very pleased to welcome all visitors. Accommodation will be readily available. 73, 3AKW.

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QUEENSLAND

TOWNSVILLE AND DISTRICT

Well ere this appears in print we will have a fair idea of which State was the winner of the R.D. Contest. Even though my score is very small, the main thing is that I did submit a log. Whereas there are many who fail to do so each year with the result their State misses out. That is what happened to VK4 last year. If we are lucky this year I hope it is not because we are the Contest Committee for the next three years.

It was pleasing to see in last "A.R." that Claude 4UX received top points for Qld. in Section D on the National Field Day Contest. Together with getting the "Ods" printed! Life will become unbearable till I see the results of the R.D. Contest. Hope you other chaps in our Sunshine State did him over.

Tribute is paid to all Amateurs in their good operating technique during the period. Also it was mentioned by a few stations and the question asked, "Why are the ZL boys not asked to participate in same under a special section?" Seeing that the 25th April, Anzac, is held by both countries. We enter their Contests. How about it?

Intrigued the other day on 7 Mc. to hear two near-northern boys nattering. Seems one heard a chap call "CQ AA" and was asking the other one what it meant. Bright answer: "It must be a official call as AA is generally reserved for their use." Nearly broke in and said they were wrong as it was "Alcholic Anon.' It was the **All Asian Contest.**

By the way, will watch the next few notes from a certain scribe to see if the two FanSys made it again this year in QSO in R.D. Contest.

Visitors to the north included Ken 2ST. He met many of the boys and degassed tubes are everywhere. Attended the local meeting and met those at whose shack he missed out. Can verify the poor conditions we are having locally and the noise level. Believe he heard a tape of the noise level at one shack.

Local meeting decided not to have a T.v.i. Committee. Apparently we will be in a saturated area and let sleeping dogs lie. Although a few years ago a couple of the clewed-up boys offered their services when it was first mooted. 73, 4RW.

SOUTH COAST ZONE

More activity from VK4s was apparent during the R.D. Contest. At least three, maybe four, logs should appear from this area. From observations during the Contest and QSOs after the event, operating procedure was very much improved on that of last year, and the Contest was thoroughly enjoyed.

Have heard that a new W Amateur is settling in this area and will be coming on the air. Hope to meet up personally with him soon. Congratulations to all who have a hand in the working of producing "QTC." Hope the good work continues. 73, 4WB.

W.I.A., VICTORIAN DIVISION

STATE CONVENTION

will be held at

BALLARAT

during the week-end of

SATURDAY, 3rd NOV., and SUNDAY, 4th NOV., 1962

The Hosts, South Western Zone, invite You and Your XYL to join us.

Saturday, 3rd November:
Dinner, Craig's Royal Hotel in Lydiard Street South, Ballarat

Sunday, 4th November:
White Swan Reserve, Ballarat.

Competitions. Novelties. Fun for all the Family. Tx Hunts, Scrambles (h.f., v.h.f., s.s.b.). Top value Prizes.

YLs, XYLs and Children specially catered for.

Bookings: Accommodation and Dinner to VK3ZBS B. M. Stares, Lot 935, Malmsbury St., Wendouree.

Deposit: Hotel £1, Motel £2, per person.

W.I.A., QUEENSLAND DIVISION

Wide Bay and Burnett Branch, in conjunction with Central Q'land Branch and Bundaberg Radio Club

CONVENTION

will be held at

BOGARA BEACH, BUNDABERG, QLD.

during the week-end of

SATURDAY, 6th OCT., and SUNDAY, 7th OCT., 1962

Hostel accommodation. V.h.f. **Tx Hunts,** 7 Mc Mobile Scrambles. Barbeque, good prizes. Good time assured for all.

Further enquiries to VK4LN, Barrie Bestmann Sec., 43 Garrick St., Gympie.

CAIRNS AREA

The R.D. Contest has gone again for another 12 months. For the first time for many years there will be another log submitted besides my own from the Cairns area. Very pleased to hear Roy 4AX running up a respectable number of contacts on 7 Mc. Keep up the good work, Roy, and keep the rust out of the rig.

Have had an influx of southern visitors, the latest in town was 2ST, who apparently did not have time to look us up, but my spies reported that you were in town, Stan, and we were on the lookout for you. Les 4XJ also paid the north a flying visit, followed you as far as Mareeba, Les, but never a word from you since then. Even me old mate from Townsville, Bob 4MF, called in to see me, but unfortunately Bob couldn't stay long.

If you work 14 Mc. c.w. you must have come across Esmond 4GZ. Don't look for him on any other band because you won't find him, that is all he works. He tells me that he is building a new rx, 50 cycle bandwidth, stabilised osc., automatic CQ answerer, etc. Esmond reckons that he is building it like a battleship, because once he has it finished it will have to stay put because he won't be able to shift it. You can always borrow 4MH's crane. Ted reckons that it will lift 50 ton.

You never know what the Hams get up to. Conditions between here and Innisfail have prevented Bob and myself from having our usual evening ragchew, so what does he go and do just to keep his hand in—starts a class of 16 pupils. What are you trying to do, Bob, put us all off the air; remember the QRM. All joking aside Bob, good on you, keep up the good work. I wish you and your class every success. Have you introduced them to Amateur Radio yet? I am sure that they will find the magazine of great interest. Free advert—how's that, Ed.?

VK8 (P.S.) please note. Received my yearly notice from the P.M.G. to pay my usual £1 at the local post office the other day. 73, 4ZW

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division, the Division that never looks for trouble, but always manages to get its share, was held this month to a capacity house, standing room only, and very little of that, and took the form of a display of members' gear. It appeared at first that although we were going to have a capacity house, we were not going to have much to display for their entertainment, but as usual, at the last moment, the display table filled up and a very representative display was presented.

Due to the late arrival of the exhibits the opportunity was taken by the canny Chairman, John 5JC to carry on with the business section of the meeting, and for once the full attendance listened with bated breath to the administrative side of their hobby. The Chairman, in a few well chosen words, made reference to the unfortunate passing of Bert Binfield (5TZ this month, and all present stood in silence for a minute in respect to his memory.

Opportunity was then taken to introduce the new Minute Secretary, Geoff 5ZCQ, who read the minutes of the last meeting in a manner that suggests the VK5 Division has at last picked a winner. Very little business, either Federal or Divisional, came up for discussion, although a letter from VK2 referring to their Youth Scheme was read to members and discussed, and the appointment of Warwick 5PS as Custodian of the Instruments was announced to all present, with a suitable fanfare and the firing of a twenty-gun salute. Incidentally, this new appointment means that I now hold about five positions in the Division, and my suggestion that possibly I could shove a broom up my cardigan and sweep the floors as I dashed around, met with a decidedly cool reception.

The display of members' gear then took place with a suitable explanation and description by the member concerned, and the following winners were then announced for the various sections. As a means of padding these notes, and also as a pat on their back, the following received the blue sash of victory, plus the prize that went with it. Associate members' section, Frank Forgie, for an i.f. strip. The h.f section came up as a joint 1st prize to Al 5MF and Cyril 5DY for some excellent s.s.b. equipment. V.h.f. section, Cor 5ZKC, for a 50 Mc. rx, and this same gentleman walked off with the test gear section with a grid dip osc. When the cheering and jeering had died down, the Chairman thanked all of the members who had displayed gear, thus helping to make the night such a success, and closed the meeting at the somewhat early hour of 10.30 p.m.

In closing the write-up of this meeting, I cannot refrain from mentioning that the number of youthful members of the audience seemed greater than usual, and this is something to be proud of, because there has been something of a tendency lately to stress the fact that the W.I.A. is only for the older person and lacks youthful attendances and its attendant enthusiasm. As I glanced around the audience at the meeting, and noticed this increase of youth attendance and interest, I could not help but feel that all the interest and hard work which the "Old Fogies" of the Division put into their various duties, unheralded and unsung, is at last reaping its just reward. One thing I forgot to mention is that Brian 5CA has resigned from the Council, and Geoff 5ZCQ has taken his place, but Brian never got very far away, he was immediately co-opted back on the Council to continue the running of the Divisional journal, a job he has conducted with signal success since its inception. I also forgot to mention that a suggestion was received from Bill 5WW as to whether in their search for a new club room, the Poultry Fanciers' Hall in Hanson Street, had been inspected as a possible meeting place. I don't know whether Bill had his tongue in his cheek when he made this suggestion, but it struck me forcibly that the Poultry Fanciers' Hall and s.s.b. would go together!! Sorry Comps 5EF, but I could not miss the chance. The ball is on your side of the net!

Noticed among the audience at the meeting Col. Walker and his charming young lady friend, Miss Smith. Col. is an associate member and Miss Smith is extremely interested in the hobby. We extend a hearty welcome to Miss Smith and hope that one day her cheery voice will grace the ether from her own station. Don't I say the nicest things? Don Pansy is another of my names!

Was talking to Rob 5RG (ex-8RO) at the meeting and he commented on the fact of his not knowing half of those present, although once he knew almost everybody at a meeting. 'twas ever thus. Was also talking to John 5AN and was surprised to know that he was once a 2AJE, to say nothing of 5AS at Darwin, and G2KUI in the Old Country. I don't hold the Old Country, or Darwin against him, but a VK3—well, that's a horse of another colour!

Incidentally, I notice that the VK3 scribe has of late been getting more and more personal in my direction. He had better be careful, the Editor is a personal friend of mine (I think) and a word from me in his delicate pink ear could mean that he would have his job of scribe taken away from him at short notice, say twenty years perhaps. So be warned, ye besmircher of my character, Pansy has influence in higher quarters, even if he has not yet descended to giving away old chassis, or growing ferrite cores among the chrisanth—crisanthis — krithan — krythanthem — sweet peas!

Rex 5DO has announced that he will be relinquishing the position of VK5 Treasurer in the near future, and went at great lengths to explain to me that his recent purchase of a brand new Wolseley motor car had not influenced him in any way. Apparently my system of budgeting is no longer the secret that I thought it was, he told me that his creditors were also mystified just like mine. I might still get him to make a statement yet!

Worked Ron 3RN in the R.D. Contest, and he continued his insults toward me. After we had exchanged numbers, he said, "Ask Warwick if he has received my letter yet." When I said, "This is Warwick, I have received your letter," he went off into hysterics and said, "I did not recognise your voice, you poor old man." I was quite prepared for Pincott to bob up and join in the general hilarity, but fortunately for my bruised feelings, he was missing.

Jim 5JK has almost finished the new rig, and it looks a beauty too. He lifted the veil of secrecy the other night for about thirty seconds to enable me to catch a quick look at it. Heard it on the air the other Saturday night too, and also recognised his dulcet tones immediately. You beaut.

Joe 5RC has departed for pastures anew, howe other than Woomera. I have been led to believe that he has already formed a new tribe among the natives, to be known as the Macnulla-Nulas, although I can discount the added rumour that at all their meetings they open proceedings with the singing of "My boomerang won't come back"" Even the bagpipes wouldn't stand for that.

The Admiral (5ZAH) threw a couple of quick glares at me during the meeting. I checked up as to why this was occurring, and he somewhat tersely accused me of talking him into buying a "silent" crystal at the last buy and sell night. He further told me that he huffed and puffed at the crystal but it continued to remain silent, and as a last resource he took it to pieces and found that the reason why it was "silent" was because it was missing. He is bringing along a 22 rifle to the next buy and sell, but refused to say why.

I notice in a copy of the English "Electronics Weekly" a statement to the effect that it has been reported that an Australian Radio Amateur has built a 27 ft. high aerial by soldering 85 empty beer cans together and mounting them on a clothes line post. The comment was that it was just another example of how an unlimited supply of raw material can be put to practical use in electronics!

Despite rumours to the contrary, Tubby 5NO and his son and heir Jeff 5NQ have not yet, at the moment of writing, left Elizabeth for their new QTH at Gawler. The new house has been in the "last fortnight" stage for some time, and at the moment no hope is in sight. Both gentlemen have been somewhat boasting of the fact that their shack is already built and the gear moved in, giving the impression that they did this marvel of building all off their own initiative. I hate to be the one to put their weights up, but a little birdie told me that the Board of Management put her foot down with a firm hand and refused to allow even a teeny-weeny bit of radio gear in the new house.

The R.D. Contest has come and gone, and everybody had their usual good time, judging by the bedlam that broke loose on the bands as zero hours came up. I missed out on 81 Mc. this year, this band has always been my happy hunting ground on R.D. day because it is a bit quieter up there. However, when I listened on several occasions to that band it was as dead as a doornail. I was a little unhappy about this because for the last three or four years the highlight of the Contest for me was to work my namesake Alan 4PS and note his evident embarrassment as he called me "Pansy." See you next year Alan?

Hughie 5BC was the centre of the Berri social activity this month (Sept.) when his daughter Margot was married to Dale Wilson, 5VV, technician at b.c station 5AU (may I be forgiven for that heresay). Nice work OM, I am told that you made quite an impressive figure.

Two VK5 chappies were in the middle of chit-chatting on the 7 Mc. band as R.D. zero hour came up. They both commented on the peculiar conditions on the band as the QRM came up in waves and waves, and it finally hit them as to the cause. In view of their highly technical and theoretical reasons given on the air for the sudden rise of QRM, listened to by hundreds of ears with intense amusement, they probably wish now that they had been on c.w.!

My spy in VK2 reports that Cec. 5BZ has ventured into that territory recently, Broken Hill no less, and he also reports that Cec. appeared to be having the time of his life in that city. When questioned by our reporter concerning the veracity of the report, Cec. confirmed the truth, and said that he could recommend a visit to Broken Hill to anybody. He elaborated on the matter by saying that he had been so busy lately that he felt the need of the trip to recuperate, and slown down. For a man of millions and retired at that, this was considered by our reporter as the understatement of the year.

Frank 5MZ, he who is addicted to breaking of legs or arms at the slightest provocation, is having trouble with his Volkswagon attracting all the dogs in the neighbourhood, and I have seen a photo to prove it. Frank looked real cross in the photo and I can't say I blame him. Oh that such wickedness could be.

Heard Rex 5DO and Basil 5ABJ in their usual Sunday morning sked on 7 Mc., and Rex was blowing his trumpet as to how good he was at fixing electric shavers. He was rash enough to say that if anybody wanted a shaver fixed up, to send it to him and all would be well. Understand he has bought up a goodly supply of bandages and blood plasma, to be used during testing of the shavers. How brave can one be?

Carl 5SS and associate member Jack Parkin decided to run a couple of power points at Carl's QTH for the t.v., etc. Having completed the mammoth piece of construction work, on went the main switch, but no t.v. Mammoth piece of construction dismantled and rewired, main switch on, still no t.v. Scratching of heads, plus removal of splinters from fingers, and then Carl's XYL walked over to the t.v. set and switched it on, and all was well. Chuckles of fiend-glee from XYL, reddening of two embryo electricians' faces, and a sad lowering of the curtain on the whole episode!

Have heard nothing of the escapee from Norfolk Island, Arch 5KK, although that statement is not strictly true. I did hear him on 7 Mc., going lickety-split on c.w. during the

R.D. Contest, and I gathered he was upholding the honour of the Division in no small manner.

My observations on the noted lunchtime net on 7 Mc. leads me to believe that Pete 5FM, Alan 5ZC and Bert 5BD are preparing for a mass onslaught on to 6 mx. I also would hazard a guess that 6 mx will be well aware of their onslaught, judging by their remarks to each other.

In view of the fact that I am now the Custodian of the Divisional instruments, a very high sounding title, even if I say so myself, I suppose that I should enumerate the various instruments in my custody. An audio osc., an r.f. osc., Bendix frequency meter, Oscilloscope, valve checker, and a Type 3 Mark II, for use in the convalescence room. One or two other bits and pieces will be available when located (take the hint, mugs), but there is one rule that must be strictly observed, ring before calling for the instruments, because the instrument that you want may be out on loan. Also, if you ring before you call, it will give me a chance to don my Custodian uniform and greet you with 300 blasts on the Custodian trumpet. If you are greeted at the door by a vision of radiant loveliness, that will be my XYL, but don't be scared, she usually warns before she strikes—I think—Oooh!!

Stuart 5MS made a mighty effort for VK5 in the R.D. Contest. He did not intend to stay on for the 24 hours, but by midnight the bug had bitten and he finished with something like 460 contacts. It was a change to hear him on a.m. for the period of the Contest.

Claude 5CH is at the moment of writing on holidays and has been heard at times on 40 and 80 mx. Holidays with Claude usually means a new load of disposal gear will arrive at any time now!

Leo 5GJ can be definitely written off for Amateur activity. It is even being suggested that he must have used some of his Radio gear for his "goggle-box," and therefore cannot come on. Just think of it, he even has a tower laying in his back yard waiting to become vertical. Tut-tut, and a couple of Toots.

Garry 5ZGR is at the moment re-building his 6 mx tx and Dale 5ZER is poised waiting for the next opening on that band. He is talking of erecting a 100 ft. tower, but enough, or the v.h.f. correspondent will be after me!

Erg 5KU is recovering from some feeder trouble, bit big for feeders isn't he? Oh, sorry, it should be feedline trouble. However, in his usual capable and energetic manner, this was soon disposed of, and everything in the garden is now lovely. Get it? Everything in the garden is now lovely. All right, all right, I thought it was clever. His XYL still holds the Mount Gambier title for sponge cake making, although at the last meeting of the gang, Stuart produced a sponge cake which showed distinct promise. Col 5CJ, apart from keeping the lunch-time skeds on 7 Mc., is spending a fair amount of his time and activity on 80 mx and sporting an 80 mx half wave antenna at that. Is still giving his famous "white ant trick" every time a sponge cake bobs up at the meeting. Two this time, what a feast!

I have heard it said that one gets the truth from children without any frills, and this was amply demonstrated the other night when I rang our worthy President, John 5JC, and was answered by his daughter Judith. Her Dad was busy, so she asked could he call me back, and who was speaking. I said, "The most handsome, athletic, modest devil-may-care member of the VK5 Division. Now who is it?" Without any trace of hesitation, she said, "Oh it's you, Mr. Parsons." See what I mean? I can't help being what I am! Although, on thinking back, the last time I spoke to her I said, "Guess who," and she said, "The man with the squeaky voice." Confound it, I can't take a trick.

Tom 5TL, with his usual efficiency and desire to keep up with modern practice (that should make me sweet with him), is tinkering with becoming transistorised in the somewhat distant future, depending upon time, money and inclination. By the way, Tom and his fellow tonsil ticklers recently journeyed to our fair city from Renmark, and sang with great gusto in the Adelaide Eisteddfod, so much so that the adjudicator had no hesitation in awarding them the blue ribbon, to wit, first prize. In an endeavour to be quite fair, Tom candidly admits that he is finding difficulty in deciding whether it was "because of" or "in spite of" his efforts!

I cannot put the notes to bed before commenting on the suggestion made by the VK3 scribe that my speedo never reads more than 25 miles per hour. For his information, and also to show just what a dare-devil I am, when it reads 25 m.p.h. it is on the second time round. Whoooooosh. 73, de 5PS (Pan5y to you).

OBITUARY

VK5 reports this month, with sincere regret, of the sudden passing of two of its members.

A. A. (BERT) SINFIELD, VK5TZ

On the 1st August, Andrew Albert (Bert) Sinfield, VK5TZ. Originally VK2TZ, and ex R.A.A.F., Bert was employed with the Mullard Company in Adelaide, and had not been in the best of health for some time. It was only in the last few months that he had become again interested in Amateur Radio and was only recently appointed to the committee which was handling the finding of a new meeting place for the Division. Bert was liked and respected by all who came in contact with him, and his sudden passing is a loss to Amateur Radio and the Division in general.

Our deepest sympathy is extended to his sorrowing wife, Enid, and his two children.

H. E. E. (HEC.) BROCK, VK5UZ

On 19th August, Hector Edward Earl (Hec.) Brock, VK5UZ. Hec. was one of the few remaining real old-timers, being one of the original members of the Division when it was first formed. He was relicensed in 1952, and although never really active on the air, was a constant visitor to Divisional meetings and always kept abreast of Radio Amateur practice. His many interests included photography, hi-fi, and gemmology, the latter being his specialty, having lectured frequently on the subject at the University.

To his sorrowing wife, Melva, we extend our sincere and deepest sympathy.

ELIZABETH AMATEUR RADIO CLUB

At the annual general meeting, held in August, the following new office-bearers were elected: President, 5PE; Sec., George Downing; Treas., 5WV; Committee members, 5ZMK and 5ZBR. 5FY continues to act as Awards Manager, 5NQ is representative to W.I.A. and will also handle the QSL Bureau, 5NO remains Public Relations Officer and Editor of "Info." Reports were received from the retiring office-bearers and many complimentary remarks passed on their services.

5FY has been doing a splendid job as Awards Manager, in addition to other duties, and is very proud of his quick "turn round" time in issuing "Elizabethan Awards". Generally he is able to post the award within a week or so of receiving an application. However, in view of the importance of the authenticity of this most valued parchment, it is sometimes necessary to delay the issuance until more complete checks are made. This can take two or three weeks. We understand there was one case in which, for various reasons, the issue was made only after two months of most diligent enquiries involving (we gather) the co-operation of Interpol and the F.B.I.!!

5LZ, the club station, was demonstrated at the Elizabeth North School Fete on 25th August by 5FY and 5DY, with co-operation from many of the local stations. Work is still in full swing on the 53 Mc. mobile equipment for W.I.C.E.N. use. A round-up of W.I.C.E.N. members was held on 10th Aug. on 3628 Kc.

Immediately before the club meeting on 1st Sept., a demonstration of the W.I.C.E.N. net on 3628 Kc. was given to Mr. R. Nichols, the Deputy Commissioner for Civil Defence in S.A. In the lecture that followed, Mr. Nichols explained briefly the sort of conditions likely to be present in an emergency and some of the organisation involved, and then went on to describe the particular job for which trained Amateur operators would be suitable.

Because of an enlarged programme of activities, the club will now hold two meetings per month, on the first and third Saturdays. On Oct. 6 5ZMA will describe a piece of transistorised equipment that includes various types of transistor circuits; and on Oct. 20, Mr. Clements, of Texas Instruments, will talk on the practical application of various types of transistors.

All members were pleased to hear that we made top score in the 1962 National Field Day, but more than a little worried at the closeness of the victory over the Moorabbin lot. 73, 5NO.

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WESTERN AUSTRALIA

Good heavens! I have just realised that people in other States read other people's mail! It was with some surprise, and may I say pleasure, that I observed in Sept. "A.R." that the scribe for the South Australian Division, whom other VK6s inform me is known as "any other name would smell as sweet as" or something, congratulated this State on the re-appearance of notes in "A.R." Thank you, Sir, for your words of worldly or heavenly wisdom, as the case may be. The only trouble is, things never pansies out as one expects! Why, one of my readers wished me luck last week. It's just occurred to me—what do I need luck for, in writing notes?

Oh well, let's see how my spy ring is working this month. Issued a couple more cloaks this month. Daggers are in short supply at the moment (needed for the satellite situation), so was only able to get two old bent ones. This is probably just as well, because I find that we have an ex-VK6 being smuggled back into the country by the R.A.A.F. Ted

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VS6EC, late of Bentley, will be returning in February 1963. Hope to see you then, Ted.

Of course, this is unfortunate really, because Ted will miss the Games. Eh! In November! What! No. No! The Commonwealth Games, not Dames! Anyway, it's apparent that some other Amateurs won't be missing out. I have word that Don VQ5DB expects to be in Perth from October for the da—er—games.

And he's not the only one. Do hear tell that Bill ZE7JR contemplating a trip overland from Perth to Sydney after the Games. Hurry on there, please, camels take a long time to fill up. Move along to the next tap, please sir, regular water at this one, super at the next! Talking about means of transport, believe Cole 6CS has acquired himself a Rolls Royce. Special tankers are already doing a shuttle service to keep it going. Incidentally, anybody seen that famous ad. for Rolls Royce? Under the heading of horsepower, it says, "Adequate." Half your luck, Cole. In fact, I have half your luck—I've got the Rolls part of it. Rolls down one hill and can hardly get up the next! Cole lives at Bunbury and what a pleasant spot it is.

Les 6WL has just moved into a new QTH in that area, at Carey Park to be precise, and, although he has bits of antenna hanging down at each end for 80, appears to be getting out OK and has even worked people on s.s.b. Trust you are settling in OK Les in new QTH. Ghastly business, what? Movin' and all that.

One of Les' customers since moving has been Skipper 6WS. Did you notice the announcement in the West Australia that Skipper and his XYL celebrated their Diamond Jubilee recently? God bless and congrats to you both. Skipper hasn't had his licence long, of course, only about 38 years. Mmmm? Well, seeing Skipper is 88 now—see what I mean. He is totally blind but still operates his rig. As a life member of the W.A. Division and also the Subiaco Radio Society, guess you are like the 1846 brand and "Still Going Strong." All the best to our G.O.M.

While we're down the southern end of the State, have heard that Herb 6XO was observed to be proceeding homewards, giving odd clacketty-clack sounds as he passed. This noise was due to a "do-it-yourself" type cubical quad kit. Anyway, Herb managed to get all the bits tied together and got it in the air in time for the R.D. Contest. Really works, too. Now this just shows you; ya gotta have an objective to work towards. Like the R.D. Contest. Why, even Clarrie 6XG erected a new 80 mx half wave aerial for the big day. Word has it that the "X" group entertained friends during the Contest with "light" refreshments. Now, don't tell me there weren't some 807s that lost their plate caps in the process!

S.s.b. seems to be catching on fast, now. 6GR, 6CN, 6KJ all active, 6JG at Bunbury experimenting but not active due to pressure of work. This apparently goes for 6TL and 6SG.

Up north to Geraldton, where they only have two brands of weather. When its not raining, its real beaut.—and it doesn't rain that often! Brian 6VV is performing miracles by driving an 813 linear with an 1852, or a 6AC7 whichever you prefer! Works on 80, 40, 20 mx. The exciter uses FT241A crystals, centered on 475 Kc. Four crystals and your in business, says Brian. Sounds like the basis for an article in "A.R." too, Brian! All this s.s.b.! Have heard a whisper that John 6JO knows something about 4E27s in a ZL linear circuit, so let's get with it man! Another Geraldtonian (now there's a word!), Noel 6MF, did some very effective work with his 50w. rig on 7 and 14 Mc. during the R.D. Contest, even though salt air and water had got into the tuning boxes on the triband. What did I say about the weather! Of course, Noel is not going to be happy with a mere 50w.—4/125A on 80 through to 10 at 150w., thank you very much—and Brian 6VV only 200 yards away! Interesting situation, what! If you think that 4/125As are a rare animal in these parts, you're wrong because Charlie 6TC also has one, see! Now, Charlie is in the same general direction as Jim 6JH, known locally as the "low power king." Jim runs a mere 28 watts. Haven't you got a 4/125A in your little bottom drawer Jim?

Now hear this! Anybody interested in 2 mx fox hunts—at Geraldton! They have a fox up there but no hounds. Sounds like a worthy week-end project for our v.h.f. stalwarts. Come to sunny Geraldton and hunt the fox!

Out towards the east we go to Merridin, and we find Frank 6QO, having got his exams out of the way, now considering whether he should put a sig out or not. Get with it, Frank, work off some of the exam frustrations. Incidentally, reports on staff movements show that an ex-ZI is resident in Merridin, but has not been active for some years. What's his address somebody and we'll send him an application for membership!

Bob 6RE having trouble with antennae at Merridin, not only his own, but all the t.v. antennae as well. Says anything the Ham puts up is puny beside the forest of t.v. towers. Oh! Well, Bob, just think what a choice of towers you'll have when a regional goes in there.

In closing, a spy reports that Tom ZS1AI, a blind Amateur in South Africa, is always on the look out for VKs on 21 Mc., at 1630 W.A.S.T., so there's some DX for you to watch out for. 73, 6LS.

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TASMANIA

The R.D. Contest is over for this year and what can we say for our efforts? Many VK7 stations took part, that is clear, but, speaking with knowledge of the south only, it would appear that no major scores were turned in. Conditions too down south did not favour multi band operation, virtually only 80 and 40 mx being available to us.

Pat 7GV has a modulator in action, and he is finding that 80 mx can be lots of fun on phone. Ted 7EB has his 122 set functioning with ample modulation now and hopes to have reconstructed main tx in going order very shortly. Speaking personally, I now have a v.f.o. in operation, so 7ZZ will now be found on frequencies other than the crystal frequencies hitherto used. It has been good to hear Bill 7YY and Keith 7RX come up on 80 mx for first class ragchews in the recent past. We hope there will be more of it, chaps. Bill 7YY expects to be off to Port Davey again shortly after the New Year, taking all his family with him this time. He expects to stay down there for about a month.

Remember the Jamboree-of-the-Air on the week-end of 20th and 21st October. Your help will be greatly appreciated, both as regards providing your station for use by a Scout Troop and also by remembering that local contacts can better be carried on on a band which will not cause interference to stations working Interstate or beyond. This exercise is a golden opportunity for publicity, let us make the publicity only of the good variety.

Charlie 7KS has replaced Brian 7ZBE on the club room fund raising committee, and we confidently expect Charlie to contribute his usual energetic share towards the work to be done.

David 7ZAI and Danny 7ZDM have spent several weeks in Northern Tasmania at the direction of their employer. David has been active on 2 mx while up there, and we look forward to a run-down of his success when he returns among us.

Len 7LE provided another lecture at the close of the Sept. general meeting, showing, if proof be needed, his great versatility in original research. This lecture dealt with spasmodic reception from weak signals and the causes of such sudden increases in signal strength. We enjoyed your address, Len, and hope that your example will stimulate others. 73, 7ZZ.

NORTH WESTERN ZONE

Well chaps, here it is, my first effort as zone correspondent. I'm sure everyone concerned will join me in congratulating Max for his fine effort during his term of office.

The last general meeting was strictly informal and I'm sure, enjoyed by all. Pity, though, that the prizes for the voice contest were not enforced. We enjoyed the talk by George 7XL and were pleased to welcome Frank from Burnie and Ray from Devonport. Frank was a keen v.h.f. man in Holland, having worked some seven countries.

Dennis 7DR has recently moved into his new home and is eyeing his neighbour's t.v. antenna with some concern. Looks like another convert to s.s.b.! David 7MS is "selling out" his old rig and is after another. Hope the pumpkins do well, David. It was pleasing to see Terry 7TT do so well in the Field Day Contest, and hear of the high scores of Ken 7AI and David 7MS in the R.D. Contest. Looks as though the northern boys carried the State again. Hope to have my call sign by next time. 73, Harry.

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